

PHILADELPHIA MEDICAL TIMES.

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ORIGINAL ARTICLES.

INEQUALITY IN LENGTH OF THE LOWER LIMBS AS A CAUSE OF LATERAL SPINAL CURVATURE.

BY THOMAS G. MORTON, M.D.,

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Read by invitation before the Bucks County Medical Society, January 19th, 1889, at Quakertown, Pa.

CONFORMING to the type of the higher vertebrates to which he structurally belongs, we see in man a symmetrically arranged skeleton, pro-

vided with a pair of upper or anterior extremities, and with a pair of inferior or posterior extremities. Each part of one side of the body, with the exception of the viscera, has its counterpart upon the opposite side. Even deformities, such as club-foot, supernumerary fingers and toes, etc., are commonly bi-lateral. Disease, also, as in the case of some eruptions upon the skin, or joints affected in acute articular rheumatism, is apt to show the same disposition to symmetry. But with all this general resemblance, upon closer examination, there may be found minor points of

difference between corresponding parts. These differences, congenital or acquired, are seen in the relative power and development of the various structures, as well in girth as in length, which, taken collectively, tend to give one side of the body preponderance over the other. Indeed, even the weight of the two lateral halves of the body is not the same. Struthers (1.) of Aberdeen, has found that, partly owing to the greater bulk of the liver being upon the right side, and partly owing to better development, in the adult the right half of the body usually exceeds the left by some fifteen ounces. This want of balance between the two sides, under favoring circumstances, may affect the rate of development of the right lower extremity, and hasten or retard the occurrence of osseous union between the shaft and epiphysis of the femur, and thus arrest, or else favor, the increase in length of the bone by influencing the period of disappearance of the cartilage between the shaft and condyles.

That considerable variation may exist in the length of the arms is a generally recognized fact, this being due, in some cases at least, to the greater amount of blood and nerve force directed to the arm most actively employed. Thus, the "base-ball pitcher's arm" and the "lawn-tennis arm" are names in common use, indicating the fact and implying the explanation of the greater size of one arm over the other. The discrepancy, however, is not always the result of greater functional use; it may be a natural difference. The distinguished anatomist, Hyrtl, states that "both of the upper extremities are seldom of the same length. The difference is in favor of the right by two or three lines. From congenital causes the difference may be greater; but is not, except in cases of great deformity, betrayed so readily as those of the lower extremities, which becomes manifest by limping. Also, the strength of the upper extremities is seldom equal. This is not owing to the greater use of the right; but there is an original difference in the muscular development of both extremities, in favor of the right one, which gives to this a marked prevalence over the left."

Richard Owen, in his well-known essay "On the Nature of Limbs" (2), insists upon the homology existing between the lower and upper extremities, as similar segments of the body, each being highly specialized developments of the diverging appendages of the haemal arch, though each segment differs from the other.

The lower limbs might then be expected to show variations in size or in length, in a similar manner to the upper extremities; and in a certain proportion of cases, the variation might be considerable. Indeed, this has not failed to attract the attention of pathologists on the one hand, or of artists upon the other. Sir James Paget says that "Few things in nature appear more constant and exact than that symmetry of organic form which is shown in the likeness of the several members of each two or more corresponding and similarly useful parts; the example nearest to each of us is the symmetry of the two side-halves of his own body; it usually appears perfect, and yet it is probable that the symmetry is never quite perfect, never mathematically true. Anyone who will carefully compare the two or more similar component parts of himself, or of any animal or plant, or any bi-lateral organ of either, will find, within the general likeness, some unlikeness of size or form, of texture or color, or of all these together. Just as between parents and offspring the likeness is general and constant, but never perfect, so it is between the halves of each individual. Invariably nature varies."

I need not dwell further upon this lateral asymmetry. We know that eyes are never exactly alike in shape and frequently differ from each other in their refraction; one ear is often larger or lower than its fellow; one side of the face is fuller than the other; even the two lateral halves of the skull, as shown by the "conformateur" or head-measurer, are not symmetrical. We are, therefore, prepared to accept as a fact a certain amount of inequality in the lower limbs, naturally existing, and not due to any preceding disease or bone-injury. This is well-known to artists.

The great models of the antique present no perfect bilateral resemblance,

and if they were alike in a work of art, we should say at once the artist had not studied nature.

"It is undeniable," writes Miss Sartain, the Principal of the Philadelphia School of Design, "that the Greek sculptors had perceived bilateral asymmetry in nature. Even in their ideal heads one can find it. The Venus of Milo and the Ajax show marked disparity in the two sides of the head. The famous statue of the Apollo Belvedere has one leg, the left one, longer than the other by a couple of inches (Winckelmann, 'History of Ancient Art'); Bowles, in his work on 'Proportion of the Human Body,' has similarly noted that in the Venus Aphrodite, the right limb is the longer. Measurements of the lower extremities show that the limbs are very commonly unequal in length. Indeed, this condition is so universal that bilateral asymmetry can properly be said to be the rule and not the exception.

Now, this difference in length of the lower limbs may be sufficient to require the attention of the surgeon. In the case of the arms, a variation of an inch or so may occur without injuring the health, or materially impairing the efficiency of the individual so affected. With the lower extremities, however, the conditions are different; the legs are not only employed in muscular movements, such as walking, running, kicking, etc., but they also support the body.

The study of the results of inequality of the lower limbs has engaged my attention more or less since 1873, when my mind was accidentally directed to the occurrence of what I may term "normal asymmetry" of the lower limbs, by the case of a man in my wards at the Pennsylvania Hospital, who, after a recovery from a fracture of the thigh, showed a difference in length between the two limbs of one inch; but the fractured limb was the longer. The fact that such a difference in the length of the limbs could exist prior to fracture had not been suspected by surgeons up to that time. With the assistance of my resident physician at the hospital, Dr. William C. Cox, I examined a large number of uninjured limbs in adults and in children of differ-

ent ages. We were surprised to find that adults with limbs of equal length were very rare, the rule being to find one-sided shortening of from one-eighth to seven-eighths of an inch, in perfectly sound individuals, and who were entirely unconscious of the fact that their limbs were of unequal length.

Nor is asymmetry confined to the human family. Professor Joseph Leidy informs me that "in the course of my studies in zoölogy and comparative anatomy, I have had occasion almost incessantly to notice more or less abnormal symmetry, in contra-distinction to that which must be considered normal, as the usual want of symmetry in the abdominal digestive apparatus; in the development of the female generative apparatus on one side only in birds, etc. It would appear as if there were even great difficulty in maintaining ordinary bilateral symmetry. In the cetaceans the nose commonly exhibits more or less want of symmetry; and in man I have never found complete symmetry throughout the nasal cavities. I have nowhere read of observations like yours, which appear to me to be so important in their practical application."

I have on several occasions invited the attention of the profession to this subject, as probably most of you are aware, in papers read before the Academy of Surgery, the Philadelphia College of Physicians and other societies, as well as in clinical lectures. At a special clinic given at the Pennsylvania Hospital, in August, 1887, in honor of a number of foreign delegates to the Ninth International Congress, who were passing through Philadelphia, I demonstrated this inequality of the limbs, and showed its relations to lateral curvature of the spine. On their return home an official report was made to the British government by one of the delegates, Deputy Surgeon-General J. A. Marston. In this report I find the following very appreciative and complimentary reference to that clinic:

"One of the most interesting and practical demonstrations with which Dr. Morton favored the foreign delegates to the Ninth International Medical Congress at the Pennsylvania Hospital, was connected with his investigations

into the prevalence and effects of asymmetry, as evidenced in the lower extremities especially.

"Dr. Morton was good enough to illustrate his observations by the example of numerous patients and others, and he showed us a simple and somewhat neglected way of detecting this asymmetry; whether resulting from natural or acquired condition or from accidental injuries.

"The simplicity and accuracy of his procedure, and the sufficiency of the landmarks as guides, appeared to leave nothing to be desired; and it was curious to note the expression of comfort on the part of the patients to which the removal of asymmetry gave rise.

"Since my arrival in England I have had an opportunity of testing this method to a limited extent.

"A tall, well-built, young officer of the Royal Artillery came before a medical board in regard to a pension for a wound of the thigh, sustained in Burmah. The femur had been fractured in its lower third by a ball about a year ago. The wound was quite healed and the bone firmly consolidated, though much enlarged. I noticed that he walked very badly, and that his gait was awkward, out of all proportion to what it should have been for such an amount of injury.

"On stripping him and making him assume an erect posture with the heels on a level with one another, the obliquity of the two folds of the buttock was very obvious; he was asymmetrical, and he assumed many positions to adjust himself in equilibrium.

"By means of a book, which I opened at different depths, and interposed between his foot and the ground, I was able to restore the two folds of the buttock to exactly the same level, when he not only stood erect with ease, without signs of what would in drill language be called 'unsteadiness in the ranks,' but he spontaneously remarked, 'That is comfortable.' I told him how to proceed to get a correct measurement of the necessary addition to one boot, or, what would amount to the same thing the amount of diminution of the other to make him walk level and symmetrical.

"I found that the heel of the boot

he wore fell short of the requirements of his case."

Since the publication of the results of the observations of Dr. Cox and myself, in 1875 (3), a large number of papers have appeared confirming the views I held. Dr. John B. Roberts measured the tibias and femurs of eight skeletons, and found the corresponding bones to be quite unequal, thus demonstrating conclusively the folly of insisting upon obtaining equal length of the limbs after the fracture of one of them. In the *Journal of Anatomy and Physiology*, for 1879, Dr. J. G. Garson (4), reports the results of the measurements of 70 skeletons of various ages and of various races of mankind. In seven instances only did he find the right and left lower limbs of the same length; the left femur was longer than the right in the proportion of more than two to one. Out of 513 boys between the ages of 8 and 18 years, that I examined at the Girard College in 1879, there were 272 with irregularity in the lengths of the limbs. In one case there was a shortening of the right limb of $3\frac{1}{4}$ inches; but this was accounted for by a fracture of the thigh some years previously. The results of measurements were:

91	showed a difference of	$\frac{1}{8}$	of an inch.
100	"	$\frac{1}{4}$	" "
41	"	$\frac{1}{2}$	" "
22	"	$\frac{1}{2}$	" "
12	"	$\frac{1}{2}$	" "
2	"	$\frac{1}{2}$	" "
2	"	$1\frac{1}{2}$	inches.
1	"	$1\frac{1}{2}$	" "

The right limb was found longer in 198. None of the boys had been aware of the existence of any shortening, although an inspection of the legs of their trousers showed one heel more worn than the other. Of 49 young men at Haverford College, accustomed to athletic sports, 13 had limbs nearly symmetrical, the others varied from $\frac{1}{8}$ to $\frac{1}{2}$ of an inch. The right was shorter than the left in 26 cases.

It is therefore the rule, and not the exception, to find a difference in the length of the lower extremities in persons of ordinary health, the result of natural causes and occurring quite independently of antecedent injury or bone-disease.

Many persons who have marked asymmetry may be totally unconscious of the defect; for no symptoms may have occurred to attract their attention. Other persons, again, with even very slight variations of limb-length, may suffer very considerably.

It does not always seem possible to determine if the inequality in length of the lower limbs is congenital or acquired. Occasionally several members of one family have been found to be asymmetrical; indeed, such defect often appears to be hereditary. As a result of nerve disease of intra-uterine life, an arrest of development occurs, which can always be seen in after life. From this cause arises the varied forms of clubbed hands and clubbed feet. In congenital talipes, there is always more or less palsy or feebleness of certain muscles or groups of muscles, which is never recovered from, and every part so involved shows a permanent variation in volume, as well as in length of limb, when compared with its fellow. Infantile palsies, even if their duration is brief, cause an arrest of development, and the pathological changes, resulting from such nerve lesions are only partially, occasionally never, recovered from. Premature ossification, or injury of the articulation of cartilages, plays an important part in determining variations in the length of limbs.

Lateral spinal curvature, as a result of unequal length of the lower limbs, frequently exists without giving rise to any symptoms. The individual, even, may not be aware of having any such defect. The curvature, which is accommodative, is simply due to adjustment.

and is sometimes sufficient to suggest suspicion of disease. But the suspicion may generally be dispelled on finding that there neither is now, nor ever has been, any other sign of disease in either limb, and that it is difficult to say which of the two unequal limbs is the better or the more appropriate to the other parts of the body."

The difference of length has usually more importance in practice; for it may be associated with appearances of deformity resembling those which are due to really morbid shortenings of a limb, such as may result from the defective growths during infantile paralysis, or disease of the hip or knee, or any similar affection.

Many cases of suspected slight curvature of the spine are only examples of the adjustment due to inequality of the lower limbs, and in every such case these should be measured and compared.

METHODS OF MEASUREMENT.

The usual method of determining the length of the limb is with the ordinary tape-measure, starting from the anterior superior spine of the ilium, or the upper border of the great trochanter, and carrying the tape along the side of the limb to the lower border of the inner or outer malleolus. This is a very unsatisfactory method. Some years ago, I was so much impressed with the want of accuracy of the measurements made with the tape, that I devised a special form of measuring apparatus (see figure) with which most of my observations subsequently were made, and which answers the purpose

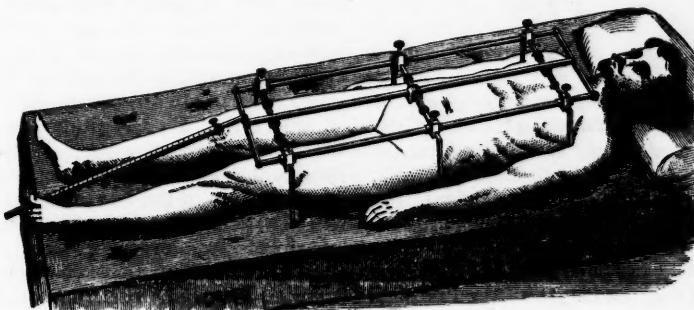


Fig. 1.

"Difference of volume," says Paget, "is often as marked as is that of length, very well, especially when the patient is confined to bed.

I afterwards accomplished the same end by having the patient stand with his back toward me, with his clothing removed, and then inserting blocks of wood, of different sizes, under the sole of the foot until I determined the exact thickness required to straighten the spine and make the body symmetrical in appearance. In using this method there are three, anatomical landmarks, which must be considered :

1. The vertical, normal line of the spine, made by the slight projections of the spinous processes.

2. The vertical line, or cleft, between the nates.

3. The slightly curved, sometimes nearly horizontal line, which separates the buttocks from the thighs.

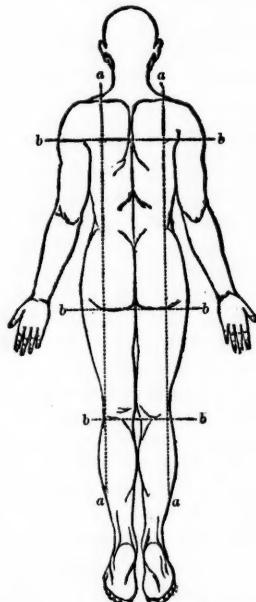


Fig. 2.

Fig. 2, showing outline of back of a symmetrical human figure; *a, a*, vertical base lines; *b, b, b, b*, horizontal base lines.

If the body is symmetrical, these three anatomical conditions will practically be symmetrical, and, consequently, there cannot be any appreciable inequality in the length of the limbs. If, however, asymmetry exists, changes at once will be observed, and just in accordance with the amount of shorten-

ing of one limb, so will we find a variation in the otherwise normal conditions.

1. The median line of the spine will present a lateral deviation, with a curve towards the short or asymmetrical side.

2. The vertical line between the nates will deviate obliquely towards the short or asymmetrical side.

3. The horizontal, or slightly curved lines, or folds of the buttock, should, in a symmetrical individual, accurately correspond. If asymmetry is present, the fold of the buttock on the short side will be below that of the other.

I have also used, at the Orthopaedic Hospital, a series of well-seasoned boards, eight feet in length and four inches in width. By placing one or more of these boards upon the floor, the patient is made to walk with the foot of his shorter limb upon the board; the amount of correctable shortening is practically determined when all irregularity in his walk is overcome. The patient at once notices the relief afforded by equalizing the length of the limbs. This expedient will indicate the proper elevation of heel required to give the greatest comfort to the patient in walking, not only in ordinary asymmetry but also where shortening has resulted from hip disease or other cause.

The use of these blocks naturally led to the devising of a rapid means of applying them, and hence to the invention of the special apparatus for measuring the inequality of the limbs which I now show you.

This consists of a box or stand (much better understood by referring to the apparatus than from a description), which is 20 inches in length, 16 inches wide and 18 inches high, mounted on rollers. Set into the top of the box are two movable blocks, or small platforms, accurately fitting, side by side; these blocks are 16 inches in length by 5 in width. To the under surface of each are attached strong vertical and horizontal screws, the latter projecting on each side of the box, where they are fitted with handles, by turning which the platforms are elevated gradually to any desired height up to six inches. The manner of using the apparatus is as follows: The subject to be examined stands with his back towards the examiner, with his feet accurately placed

upon the blocks. An assistant then, by turning either handle, can gradually raise the corresponding side of the body; if the longer limb is raised, the deformity will become exaggerated, whereas, if the short limb is raised, the distortion will entirely disappear as the subject becomes "lined up," as the mechanics say, *i. e.*, in parallel line. (See figure.) This is manifested and can be easily recognized by watching the spinal column, the cleft of the nates and the ileo-femoral fold upon each side. When the spinal column and the cleft of the nates are perpendicular, and the horizontal folds between the buttocks are at a right angle with the median line of the body, and the limbs appear symmetrical, the indicator at the side of the box will show the amount of shortening, or the difference in length of the lower limbs.

This apparatus has been for some time in use at the Orthopaedic Hospital of Philadelphia, where all cases of spinal curvature, infantile palsies involving the lower limbs, and deformities, are subjected to careful examination for asymmetry. It has been found here that, by means of this apparatus, any inequality of the length of the lower limb can be at once demonstrated, and its degree accurately determined.

THE CONSEQUENCES OF ASYMMETRY OF THE LOWER EXTREMITIES.

Without stopping to discuss the causes of asymmetry of the limbs, whether due to rickets, to infantile paralysis, to nerve lesion during intra-uterine life, or to some subsequent cause of defective development, I will briefly, in conclusion, ask your attention to some of the consequences that naturally follow this condition. My friend, Mr. O. S. Hubbell, formerly a prominent druggist in Philadelphia, has written me a very interesting letter upon the subject, from which I extract the following paragraph:

"The variation of but one-tenth of an inch in the perfect circularity in the tires of the driving-wheels of a locomotive has been known to squander energy enough (measured in cost of extra consumption of coal) in a few years to buy a new locomotive, while the shock of

the incessant concussion on the road, and to the locomotive itself, are still further aggravations. Such small deviations from symmetry in motive machines have vast significance; yet the sequences of human asymmetry, so overwhelmingly important to intelligent life, have scarcely realized the attention of practitioners, or have been brought within the scope of practice, nor even recognized until disaster has arisen, possibly at a period of organic development when the physician can play the part only of the tinker instead of a builder or re-builder."

My friend, Mr. William E. Lockwood, of Philadelphia, who has always taken great interest in the subject of asymmetry, as a mechanical question, writes:

"If I rightly understand, you overcome a tendency to disease, or cure disease itself, by doing what we, as mechanics, call 'lining up' and 'getting in balance,' as considered from a mechanical stand-point. The questions involved in this connection relating to railroad travel, and the injurious effects upon bridges, the railroad-bed and locomotives, from an unbalanced or asymmetrical motive-power, are many and complex; but these questions are now being considered and appreciated. I leave it to the judgment of your profession as to what must be the effect produced by an unbalanced locomotive, as most of those in general use now are, which gives the passenger a constant succession of shocks, from the beginning to the end of a journey; and if this is so telling upon the great travelling public, with all the conveniences of spring and air-cushions, and elaborate upholstery, what must be in time the effect upon the brain and spinal column of engineers and firemen, to say nothing of all the other trainmen?"

"The cure, in a practical way, is that locomotives should be made perfectly balanced; and this is just what you recommend should be done for asymmetrical people."

I could bring patients before you, or read records of many cases, in which asymmetry in length of the lower extremities caused back-ache, rigidity of the spine, symptoms of spinal irritation, fatigue after walking a short dis-

tance, sciatica, and so on, but it is my object at present to direct your attention to it as a cause of lateral spinal curvature. That curvature may be due to this cause is a matter of every-day demonstration, since we can make the deformity disappear at once by blocking up the limb. Recently, a couple of boys were brought to my clinic at the Orthopaedic Hospital, from an institution at York, Pa., by an elderly physician, who said that the boys had weak ankles, were easily tired and had backaches. I at once stripped them, and placed them upon this apparatus, and demonstrated a lateral curvature in each case, entirely due to inequality in the length of the lower limbs; one having a shortening of $\frac{1}{2}$ of an inch, the other of $\frac{1}{4}$ of an inch, upon correcting which the curvature disappeared. The old doctor remarked, on going away, that he had "learned more about spinal curvature in five minutes than he had previously in fifty years' practice."

I will briefly refer to one or two other cases in support of my statements.

Case I.—A. H. F., 24 years of age, from Wyoming County, in this State, came to me in 1886, with persistent backache, only relieved when he was in a recumbent position. It had been mistaken for incipient Pott's disease affecting the lower dorsal and lumbar vertebrae, and in fact he had worn a plaster jacket for several months without any benefit whatever. No examination of the relative length of the lower extremities had been made. I found upon examination a very marked double lateral curvature, and I also found the right leg $1\frac{1}{2}$ inches shorter than the left.

It was found that when the short limb was sufficiently elevated, the spinal curve was greatly lessened, but could be only partly corrected, because a certain amount of permanent rotation of the bodies of the vertebrae had taken place; this, with possibly some absorption of the intervertebral substance, had produced deformity with some spinal rigidity.

The patient was directed to have the heel of the right shoe made $1\frac{1}{2}$ inches higher than the other, and, to support the uncorrected curvature, a spinal brace was applied. Immediately after-

wards, or as soon as the limbs were made symmetrical, the backache, loin pains and most of the sciatic neuralgia and general uneasiness subsided. Some months afterwards I saw this patient again and found him in excellent physical condition and quite free from pain and former spinal symptoms. Under date of October, 1886, this patient wrote, "I am glad to report to you my present condition. You remember that I was unable to bend forward in the least; at present, I can nearly touch the floor with my fingers. I have been very busy with my work. My health is improving all the time; I am gaining steadily, have no pains, feel first-rate, and am increasing rapidly in weight." Neither this patient, nor any of his medical attendants ever suspected that there was any difference in the length of his limbs. The well-marked spinal rigidity, and the continual and increasing pain, had naturally suggested the existence of bone-disease, or of commencing abscess; which in truth, would not be surprising had it occurred, for a strumous diathesis, associated with marked inequality in the length of the limbs, would undoubtedly predispose to such results.

Case II.—W. F. W., aged 17 years, born in Philadelphia, for a long time had complained of pains around his waist and loins; the pain he described as a tiresome ache which was only relieved by lying down. When two years of age he had an attack of measles, and for a year was partially paralyzed on one side. He subsequently recovered the use of his limbs, but while walking he was conscious of a rather one-sided movement. Measurements showed that the limbs upon the left side of the body had suffered in their development and notably differed from the right. The left leg was one inch short. Since the inequality was corrected by increasing the height of the heel, he has been entirely free from pain and walks without the slightest lameness.

Case III.—W. S., born in Philadelphia, 25 years of age, came to me with the usual complaint of backache, from which he had experienced much annoyance for several years. In early youth he had had an abscess near his right

ankle; at the age of 20 this returned, but it soon yielded to treatment. No evidence of bone-disease or permanent deformity of the ankle-joint existed. The pain in this case extended to the right hip and side and at times extended to the scrotum; when he straightened himself up he had a cramp-like feeling. For two years he had been treated for supposed renal disease.

There was found an asymmetrical condition; the right side of the body being less well developed than the left. The right lower limb was short $1\frac{1}{2}$ inches. This deficiency being made up by raising the heel, he was able at once to walk without lameness and the pain disappeared not to return. He has now, for more than two years since the correction, been entirely relieved of his former symptoms and is enjoying uninterrupted good health.

The asymmetrical condition in this case was probably congenital, for there was no history of injury or of infantile paralysis.

I might cite many more such cases, but I have already exceeded my limits. I may state, however, that this condition and the consequences arising from it have been recently studied by several observers upon the other side of the Atlantic. Among these I may mention Dr. Bilhaut (6) and Dr. M. A. Poncet (7) of Paris. It is true that Mr. Keetley of London doubts if scoliosis be really due to inequality of the lower limbs, and declares that long series of persons come under his observation with one leg three, four, five, six, seven, etc., inches shorter than the other, usually from disease, sometimes from congenital peculiarity, and it is rare indeed to find one of them with scoliosis. In most of the cases he says, "the inequality has existed for years at the very age when scoliosis usually develops" (8).

It is a fact that the higher grades of shortening are less likely to produce lateral curvature of the spine than the lower grades, because the difference becomes too great to be made up by tilting the pelvis and by muscular accommodation, consequently the patient limps or walks upon the front part of the foot in an acquired talipes equinus. This has been noticed by Drachmann

(9) and confirmed recently by Staffel (10).

Inequality in length of the limbs, occurring naturally and without injury, is not without medico-legal interest, as may be seen from the following case:

In 1878, a suit for malpractice was tried before Judge Junkin, in New Bloomfield, Perry County, Pennsylvania. An action for damages being brought against Dr. Strickler, a medical practitioner of that place, who had treated a child, aged eight years, for a fracture of the thigh, and, on recovery, the injured limb was found to be five-eighths of an inch shorter than the other. It was claimed that the boy was irretrievably ruined, although for a year he apparently had had perfect use of the limb. During the trial the question of asymmetry prior to the fracture in a limb already shorter than its fellow was discussed. This led the medical experts, who were present, to measure the limbs of a lad of twelve years of age, a son of Dr. Strickler, who had never received any injury, and who happened to be present in the court at the time of the trial: the result showed a difference in this case of three-eighths of an inch in the length of the lower limbs. This demonstration promptly led to a non-suit and dismissal of the case.

As the result of observations made during the last fifteen years upon this subject, and from the confirmatory writings and testimony of other surgeons, I believe that I am warranted in drawing the following conclusions:

1. That inequality in the length of limbs in otherwise sound and healthy individuals is the rule, and equal length the exception.
2. That in many cases the inequality is slight and may be compensated by muscular adjustment, or by tilting the pelvis.
3. That where the difference is excessive, *i. e.*, more than an inch or so, the inequality may be made up by limping or walking upon the ball of the foot, without producing lateral deviation of the spine.
4. That a minor degree of inequality occurring in a young adult favors the development of spinal curvature.

5. That many cases of backache, sciatica, spinal irritation, etc., are due to lateral curvature arising in this manner.

6. That the cause of the deformity being recognized, the remedy consists in applying means to restore and maintain bodily symmetry.

7. That many cases of spinal curvature are promptly curable by these means.

8. That before applying a plaster jacket or mechanical appliance to a patient suffering with incipient rotary lateral curvature of the spine, we should always measure the lower limbs to see if asymmetry will explain the cause of the deformity.

9. That the recognition of natural asymmetry of the lower limbs is of great importance in medico-legal sense in estimating the results of treatment of fracture of the femur. If one limb is found to be longer than the other after recovery from a fracture, it does not prove that the limbs were previously of equal length, nor, indeed, that the difference may not have been even greater before the injury.

10. That it is not claimed that all cases of irregularity in the length of the lower limbs present symptoms, nor that all cases of lateral curvature of the spine are due to want of symmetry in the lower extremities, although this is an efficient, and often an unsuspected, cause of spinal deviation.

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SYMPATHETIC OPHTHALMIA,

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Sympathetic ophthalmia in an eye, arising from the other, which is suffering either from injury or idiopathic inflammation, is a form of disease the etiology of which has been a serious study for years without the success of a positive conclusion as to its source. It is a peculiar, insidious form of inflammation, of an extremely dangerous and intractable form, appearing at times very shortly after the injury or affection of the other eye; and at other times not for a considerable length of time, often extending into years. But most curious of all is the fact that it never arises during an acute suppurative condition, as in panophthalmitis.

For a long time it was claimed that the inflammatory action was transmitted through the optic nerve; then later researches declared that it was entirely through the ciliary nerves, the optic nerves having nothing to do with it. Then later still came the microbe theory, that the streptococcus, which is a pus former, passes up along the optic nerve, between its two sheaths, to the commissure, and around down along the other optic nerve into the eye, creating the sympathetic inflammation.

This last theory has, under the influence of the microbe idea for everything now-a-days, been more or less accepted by the profession; but my belief therein has been for some time

shaken by the knowledge that it is not always necessary to have pus formation in a diseased or injured eye to create sympathetic ophthalmia; and, furthermore, that it does not exhibit itself in cases of panophthalmitis, where there is generally a profuse pus formation. Again, that cases of sympathetic ophthalmia have been cured or stopped in its dangerous process by treatment and operation.

The following marked cases, which came under my personal observation and supervision, and were reported in the *Medical Bulletin* in 1881, show to my mind more of a neurotic action than a microbic one. For if the latter, how could the change have taken place to relieve the eye as it did, except by the microbes traveling back, or rather returning to the injured eye again, and leaving the uninjured one free?

Which fact I do not believe in the least.

Oct. 2, 1880. Emma Collins, aged 4, was brought to my clinic at the Wills Eye Hospital with an incision on the outer side of the cornea of the right eye, at the sclero-corneal edge, which was received that morning from a pebble shot from a rubber gun. The incision was two mm. in length, perfectly straight and clean as if made by a knife, and through which the iris was prolapsed the size of a mustard-seed. Neither capsule nor lens were injured.

I immediately instilled a four-grain solution of eserine to reduce the prolapse of the iris. The instillation was repeated in fifteen minutes, so as to get a strong contraction, but was of no avail, for after waiting an hour there was no reduction. The child was then etherized, and finding that reduction of the prolapse could not be made by pushing the iris back into the anterior chamber with a Wecker's spatula, it was considered best to remove it and make a free iridectomy. This was done by grasping the iris with the forceps, drawing it well out and cutting off with the scissors; a clean, good piece of the iris was removed, and the cut edges and angles properly replaced by the spatula, as well as by gentle rubbing of the lid over the cornea. For two weeks I saw her at my clinic regularly, and the eye was doing splendidly—inflammation pass-

ing off and vision good. From this time she did not return again until November 6, 1880, just two weeks' absence. At this time I was surprised, when her father brought her in, to notice that she did not open her eyes nor hold up her head, but permitted herself to be led up to me. Upon opening the lids I found the left eye seriously sympathetically affected. There was marked ciliary injection, iris discolored, photophobia with lachrymation, anterior chamber normal, no increase or decrease noticeable, aqueous humour slightly discolored, edges of pupil had the appearance of thin lymph being thrown out, lens not entirely clear—so much so, with the slight discoloration of the aqueous, as to prevent clearness of the fundus. The ciliary region was somewhat painful on pressure of the eyelid over the part. The vision was dim, and the little patient saw better out of the injured eye. She had not previously, nor did she then, complain of any pain. The whole thing came on without her parents noticing it. The mother had been sick and could not bring her to the clinic, while the father was at work. Noticing, however, that she did not see so well for several days, and kept in dark places, the father determined to leave work and bring her up to me. The right eye looked very well. It was quiet and clear, but on close examination I found that the upper edge of the iris had washed back into the corneal incision and was there attached in the cicatrix, causing a pulling on the tissues of the iris and ciliary body.

The question came now: What is the prognosis, and what is to be done? It was too late to remove the injured eye, and then it had just now the best vision, so that it might eventually be the better eye, or the only one retaining vision. On consultation with my colleagues the prognosis was declared bad, with no hope: but all agreed that it was too late to enucleate the right eye. I proposed to free the iris by operation from its attachment to the cornea, and admitted her at once for the operation and treatment. Under the anæsthetic of ether a Von Græfe's knife was passed through the cornea so as to go over the point of iritic attachment and incise it through as the knife was made to cut

its way out of the cornea. As soon as this was done the iris was grasped by the forceps, drawn out, and cut off. Atropia was instilled, and both eyes were completely covered by a thick, black Liebreich bandage, so that not a ray of light could penetrate anywhere. Unguentum hydrargyri was rubbed night and morning on the left temple, and $\frac{1}{8}$ gr. of quinia sulph. with $\frac{1}{10}$ gr. of extract belladonna given three times a day, and a collyrium of atropia sulph. gr. $\frac{1}{2}$, $\frac{3}{4}$ j—used twice daily. She was kept in a dark room, and every precaution was taken to prevent any light from striking the eyes, except for a moment from a small candle when using the collyrium. The room she was confined in was one of the large wards of the hospital, so that her mother, who remained with her, could walk her about for exercise and amusement.

After two weeks' treatment and entire exclusion of light, the left eye began to look better. The pupil dilated somewhat, and the ciliary injection was less. The right eye healed from the last operation and remained quiet. Treatment continued. On the fourth week no lymph was to be seen in the pupil, and it was largely dilated; the eyeball free of any inflammation. As soon as the lids were opened the little patient remarked that she could see. The eye did not look so well. There was considerable pericorneal injection, and I found the sight very dim. In a few days the sight of the eye was entirely lost, and the pericorneal injection had much increased. The left eye, or sympathetically afflicted one, had cleared up perfectly. There was not a sign or trace of inflammation about it; the pupil was dilated ad maximum, with no adhesions, and sight had returned. Thinking now was the time for operative influence to try and save the left eye, I advised enucleation of the right eye, and which was done that day. She was discharged the sixth week with perfect vision; and the eye has remained so to this day, now nine years, without any return of the sympathetic trouble.

The enucleated eyeball was cut through the anterior posterior line on the horizontal axis, incising the cicatrix. The iris was found free from any adhesion, but thickened at the ciliary

border, and attached to quite a formation of lymph that was lying on the ciliary body along the upper line of the incision of the iris, while the lower line of the iridectomy was perfectly free.

On January 15, 1881, Frederick Powers, aged 12, came to my clinic with a small puncture in the corneal edge of the right eye, since the day after Christmas, from the point of a piece of wire flying against the ball. The iris had prolapsed and was attached in the wound. There was iritis, with pericorneal injection, and vision reduced to light and objects. The left eye was sympathetically affected, ciliary injection, photophobia, discoloration of iris, pupil somewhat dilated, and vision dim. On examining closely the right eye, I feared to meddle with it at present, as the position of the wound and prolapse was so close to the ciliary edge that I could not cut through it, and to enucleate, I feared, was also too late; so the only hope was to admit him into the hospital, exclude the light perfectly, and treat him expectantly with quinia and belladonna, with a weak solution of atropia in the eye.

He was admitted that day, January 15, and on the 24th of February, five weeks after, was discharged with eyes well. *Right eye*, pupil irregular, being drawn up towards the point of adhesion to the corneal wound. $V = \frac{4}{24}$ D. *Left eye*, $V = \frac{6}{9}$ D.

His eyes have remained in the same condition up to this time.

In examining these cases critically, it will be seen that the sympathetic affection was created in each case by a drawing on the iris at its ciliary attachment; and in that of the little girl, of such a character as to cause exudation of lymph on the ciliary body in the neighborhood of the wound, but out of the direct line of the incision, being just above the point of the upper line of excision of the iris, the part that was washed back into the corneal wound after the iridectomy. That of the boy was from a puckering of the iris into the small incision of the cornea, the irritation from which seemed to give way and relieve both eyes; whether from the treatment or natural causes it is hard to tell, as no enucleation was found necessary.

The case of the little girl is the most instructive, showing that the sympathetic affection was caused by the upper edge of the cut iris becoming attached in the corneal wound; for no doubt the relief was gained on cutting through the adhesion the second time, and abating the irritation of the ciliary nerves. After this operation, with the protection of the eyes, the eye recovered and the inflammation concentrated itself in the injured eye, no doubt from its passing to the ciliary body, as shown by the amount of lymph deposited after enucleation.

The treatment by complete exclusion of the light, with quinine and belladonna, and weak solution of atropia as a collyrium, no doubt, had much to do with the alleviation of the trouble. The quinine was given in small doses at a time only; iron I consider in such cases as objectionable, as tending to increase the inflammation. The belladonna was to act sedatively as well as antiphlogistically. In both cases a very weak solution of atropia was used; for a stronger one in such cases is, to my mind, injurious, from the severity of its action in irritating the iris by suddenly attempting to dilate the muscular fibres, and thus also irritating the ciliary body, as well as the drawing upon any adhesions that might have formed and increasing the inflammation by this pulling or tearing. Just at this stage of the disease, I believe that if a strong solution of 2 to 4 gr.— $\frac{3}{4}$ j, had been used, the result would not have been so good.

Professor Peter, of Paris, also objects to the microbe theory of this affection of the eye, and well and pertinently asks, "why if the streptococcus passes up the path of the optic nerve and over to the other side, it does not go on in its migration until it had caused suppuration of the brain?"

Instead of passing straight on into the brain by the optic tract, it prefers under this theory to deviate and go around and down the other eye.

Can a microbe have sense to know that it must turn from a straight and clear path, attacking nothing on its way, not stopping until it reaches a certain goal for which it started on its travels?

Professor Peter's lecture (see this

journal, Feb. 1, 1889) is not only interesting, but very instructive, as his remarks, with my own experience and studies, go far to remove in my mind the positive fact of a microbe theory as the cause of this most insidious and sight endangering disease.

THE PATHOLOGY OF CHOREA.

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HAVING read with considerable interest Dr. Barbour's recent paper on chorea in the *TIIMES*, I am tempted to reply to some of his ideas in regard to the pathology of this disease, particularly as he seems to invite friendly criticism. It gives me pleasure to compliment the author upon the originality of his reasonings, though I cannot agree to all of his conclusions. In considering the pathogeny of so seldom a fatal symptom-group as chorea, we must advance cautiously and skeptically; for when facts are few, theories are apt to be rampant, and neurologists should endeavor to clear themselves of the unscientific reputation of being too imaginative and theoretical. Chorea is an old disease, and yet, in fact, we know very little about it; much of its therapeutics has been the result of empiricism, while far too much of its pathology has been the offspring of exquisite reasoning founded upon false premises. The microscope has not yet revealed to us any constant organic lesion; hence, it has been generally known as a *functional* disease. We will rejoice when medicine shall have reached that state of perfect knowledge in which no such incongruous term as "functional disease" will be tolerated; for with Wood we always and necessarily associate the idea of disease with some abnormal anatomico-physiological condition. Hence, functional notwithstanding, there is some pathological cause for the symptoms of chorea.

It is pretty well agreed now that the *immediate* cause is an alteration in the molecular condition of the cerebro-spinal motor apparatus. This has been described as a *nutritive* alteration, though some have thought that the

disturbance in the nerve centers was dependent more upon an outside *irritation*, say from the blood, than upon any mere alteration of nutrition. Perhaps both factors enter into the pathology, though many reasons incline us to give the preference to the former.

Our microscopes have not been able to penetrate into the nature of this alteration, and all further assertions upon this side of the pathology of chorea are enveloped in mere theory; therefore Dr. Barbour may or may not be right when he says that "*in chorea, there is an altered state of nutrition of the motor cells of the cerebro-spinal axis, by reason of which they lose in part their capacity for storing nerve-force and discharge themselves prematurely.*"

This is but a pleonastic way of asserting that there is some abnormal change in the nerve centers, which has already been long recognized. The storing of the nerve-force "has always seemed to me to be an ambiguous phrase to apply to scientific physiology and pathology. Why not say at once that the nerve-protoplasm does not act as in health and then admit that further than that we know no more about it? What sort of a process is this storing up of nerve-force? Certainly nothing so ridiculous as the sucking of something from the blood, as a hollow rubber ball sucks in water; and yet the word "storing" might lead to some such vague conception. The analogy drawn between the storing up of a nerve-force in the cell and of electricity in the Leyden jar has always seemed to me to have been a most unhappy one, as well as the more common analogy drawn between the electric and nerve currents. There is no similarity except perhaps in one or two very minor physical manifestations. The electricity of the Leyden jar and conducting wires is simply an *acquired* property, something that can be added to, and taken away from them. Even the comparison between the galvanic and physiological cells is a poor one except so far as they are both the *originators of force*. Electricity is no property of the galvanic cell in itself or of any of its constituents. It is simply a *mode of motion* having its source in the *activity of chemical*

union. Nerve-force, on the other hand, all physiological investigations lead us to believe, is one of the inherent properties of nerve protoplasm as it exists in the cell.

It is most probably dependent upon the molecular rather than chemical composition of the protoplasm; but certainly not, so far as our reasoning may permit us to go, upon the mutual action of two or more entirely separate substances manifesting different potentialities as the result of different degrees of affinity. Hence, it seems to me that neurologists would do well to discard as much as possible all comparisons between electricity and nerve-force, except for the very crudest illustrations; for they are both quite separate and distinct entities. Any expert electrician will admit that he recognizes no such force as electricity in nerve excitability.

But coming back from this digression to the notion of the "storing up of nerve-force" in nerve cells, is the process one of *hypo- or hyper-nutrition* in chorea? Is the protoplasm of the cell in this disease the same in chemical and molecular composition as in health? If not, what has inaugurated the change: over-activity of the cell itself or some alteration in the blood state? And so on might unanswerable questions be asked almost *ad infinitum*—questions involving the real nature of the choreic symptoms. Simple generalizations will not answer them, nor help us to a solution of the problem.

But let us examine in a friendly way, and simply with a desire for scientific truth, Dr. Barbour's idea about the altered "storing capacity" of the cell a little more closely, and see how it harmonizes with what few facts we have already learned from autopsies. He says, "in the nerve-cells, when the tension of the nerve-force rises beyond a certain point an automatic discharge occurs, causing muscular contraction when motor cells discharge themselves, etc." Is this rise of tension of the nerve-force at all coincident in time with the muscular contraction? Or perhaps he means that the activity of the cells in keeping up the muscular disturbance is continuous, like the rising of gaseous bubbles in carbonic acid water in keeping up the disturbance

of the latter. What is meant by "a certain point?" Is this the normal or abnormal point for the patient? As he says himself, there are people in health who go off "half-cock," whose "certain point" therefore between nervous quiescence and nervous chorea, so to speak, must be very low in their nervous make-up; doubtless, then, any slight disturbance will cause a nervous activity much like chorea; but is this in any respect *chorea* in which there are prolonged uncontrollable manifestations of the choreic symptoms? Certainly not to my mind; the one is a condition of health, the other of evident disease. All nervous constitutions are not phlegmatic, and to say that those who are not are *choreic*, or at all like choreic patients, seems to be a want of appreciation of the differences of constitution in health. Some of the apparent, but yet not fully decided causes of true chorea, such as change of life, rheumatism, emboli, passive congestion, etc., would seem to indicate that something more than mere lowered capacity for storing nerve-force were at the bottom of the trouble.

In a certain sense, chorea is a "system" disease, it being more or less limited to the *motor* nerve centers. It is difficult to conceive what selective influence there is in any cause which should produce a mere lowering of capacity for storing nerve-force in motor and not in sensory cells. Is it that the motor are more valuable than the sensory cells? In this connection Dr. Barbour deserves great credit for noting increased muscular activity as one of the causes of chorea; this would be undoubtedly a selective cause, but this would produce something more like what is known as *habit chorea*, rather than the typical disease.

I am in doubt as to how the author explains the rise of "tension" in the nerve-cells beyond a certain point. In the latter part of his paper he seems to imply that it is directly dependent upon the deteriorated condition of the nerve-protoplasm. The latter has not the normal power of "resistance;" and yet its active force, so far as it is manifested in muscular contraction, is in no way lessened. The only difference that we can see in the gross is that it is less

under the control of the will-power; is in a state of more pronounced unstable equilibrium which is certainly not necessarily dependent upon deterioration.

Is the nutritive process (the process of constructive metamorphosis) within the cell the same thing as the nerve-force storing process? If they are different, the former is undoubtedly dependent upon the blood state, so that if the blood be altered "qualitatively or quantitatively" the cell nutrition will be altered; but what alters the cell capacity in the storing process? If they are the same, then why apply the more obscure notion of the "storing of nerve-force" for the already long accepted and somewhat less obscure notion of altered nutrition?

Again, Dr. Barbour says, "this discharge of nerve-force is brought about by flushing of the nerve cells with blood through the vasomotor nerves." This seems merely to transfer the difficulty from the *motor* cells to the *vasomotor centers*, for if each discharge is dependent upon a "flushing," then the series of discharges would seem to indicate that the vasomotor system is also in a choreic state. Furthermore, the author seems to be a firm believer in the idea that as cell activity is dependent upon the blood, over-activity means hyperaemia and insufficient activity anaemia, in which view we fear he will find many to differ with him.

Is there also not a slight contradiction when anaemia is adopted as one of the chief causes of the loss of storing capacity in the cells, and at the same time the activity of these cells is dependent upon the flushing of the blood? When the doctor again says, "owing to the lowered resistance to this discharge in the choreic cells, the normal or even less than normal amount of blood will keep up a perpetual fusilade of nerve-force," one would think that the "lowered" resistance" and lowered amount of blood would about balance and produce something more like equilibrium instead of abnormal activity.

Not to prolong the discussion, we give as our own idea that chorea is dependent upon some yet unknown nutritive alteration in the composition of the

nervous protoplasm of the motor cells, caused directly by some selective *chemical* modification of the blood, and having, as predisposing causes, age, occupation, hereditary nervous irritability, etc. I am fully aware of the faultiness of even this conception of the pathology of chorea, but I think it will be found to be sufficiently based upon post-mortem investigations, without being so wide as to involve too much doubtful theory.

Perhaps ere long I may have occasion to maintain more extensively the position which I have here assumed. But for the present we criticise Dr. Barbour's paper, not in any spirit of hostility, but simply because he invited us to do so in the spirit of scientific truth and inquiry. We admire the doctor's ingenuity and his endeavor to solve the pathology of chorea; but while we appreciate his efforts, we hope to see such questions kept as free as possible from mere theorizing, unless, indeed, the facts for the theory are so overwhelmingly abundant as to indicate to every one that but one explanation is at all possible.

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PEPSIN AND ITS INCOMPATIBLES, WITH EXHIBITION OF TESTS.*

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MR. PRESIDENT and Gentlemen: Having had my attention directed to the subject of pepsin by complaints of failure or disappointment in its action, some physicians going to such an extreme as to cast it out of their armamentarium, and having before me the statement of so eminent an authority as Prof. H. C. Wood, of Philadelphia, that "probably four-fifths of the drug used is inefficient or inert from the method either of its preparation or its administration," I was led to make certain investigations to ascertain, if possible:

1. Are the pepsins with which we are furnished active drugs?

2. Being supplied with such a drug,

cannot failure in its action be in large measure attributed to its maladministration?

The literature of the subject I have found to be brief, incomplete and scattered, and deeming it a matter of importance to every general practitioner to decide how far pepsin is reliable as a medicine, I beg your attention to the conclusions reached, not so much on account of their originality as of their practical interest.

All facts go to show that the solvent action of the gastric juice is essentially due to the presence of an enzyme or ferment termed pepsin. This converts albuminous and albuminoid food matters into soluble and dialysable forms. Since the majority of these substances belong to the class of proteids this action has been designated as proteolytic.

The products of the proteolytic action of pepsin are successively syntoin or acid albumen, intermediate products termed parapeptones and true peptones. In the stomach this peptonization is usually incomplete, and a large amount of syntoin and parapeptone is passed on into the intestines.

Pepsin is a colloidal nitrogenous body, which has been but approximately isolated and whose properties are as yet uncertain. It in many respects, however, does not correspond in its reactions to proteids.

It readily undergoes decomposition, particularly when moist, and loses its activity. This is greatest, that is, it accomplishes the maximum amount of work in the minimum of time, at about 130° F. It is completely destroyed by boiling (even by 140° F.) and is checked by cold. Pepsin acts only in presence of an acid, being completely destroyed by an alkali. The tie between the acid of the gastric juice and its pepsin is so strong that it has been termed by some writers pepto-hydrochloric acid.

A commercial pepsin should present the following physical characteristics:

1. It should be light-colored and free from disagreeable odor. A marked odor indicates the presence of peptones which render the pepsin hygroscopic and hasten its decomposition.

2. It should be freely soluble in water. Insolubility shows the presence of impissated mucus, which retards its

* Read before the Clinical Society of Maryland, January 18, 1889.

action, aids its decomposition and detracts from its true weight.

Any good influence derived from pepsin is manifestly due to its solvent power, so that this is a measure of its value. Wishing to determine the relative strength of various commercial pepsins, I have employed the following test, which is designed to reproduce as far as possible the conditions found in the human body.

Test:—Fresh eggs are boiled 15 minutes, plunged in cold water and opened. The coagulated albumen is then freed from all yolk and superficial moisture, and pressed with a spatula through brass gauze containing thirty meshes to the linear inch. Two hundred grains are then weighed out and triturated in a mortar with distilled water containing $\frac{3}{10}$ per cent. absolute HCl. This is then placed in a tube and treated with enough of the acidulated water to make five ounces. To this mixture pepsin gr. $\frac{1}{10}$ is added, and the test tube is then immersed in a water bath and heated at a constant temperature, 104° F., until one pepsin has completely dissolved all the albumen, usually requiring about four hours. As the accumulation of pепtones about the albumen hinders digestion, each tube is stirred at intervals of three to five minutes. At the end of four hours the pepsin is destroyed and further digestion stopped by boiling the mixture. To this test I have subjected the following pepsins, which are arranged in the order of their superiority:

EXHIBITION OF COMPARATIVE TESTS.

1. Parke, Davis & Co.'s.
2. Fairchild Bros. & Foster's.
3. Jensen's.
4. Boudault's.
5. Ford's.
6. Lehn & Fink's (German Scale.)
7. Merck's.

The pepsins used were purchased by myself in the open market, and were weighed upon the analytical balance of the Johns Hopkins University. The investigations were conducted at my residence.

The foregoing method serves to give us an idea of the relative digestive activity of the pepsins, but it is by no means an accurate test of their actual proteolytic power. It has been repeat-

edly proven that the action of pepsin is entirely superficial and increases proportionately to the relative amount of albumen present, whether in excess or not. Now, under the preceding conditions, all of the pepsins, except the most active, have during the entire test an excess of albumen to act upon, and make a showing which is falsely good when compared with it. The only accurate method of determining the comparative proteolytic power of pepsins is to determine the maximum amount of albumen that the most active pepsin can digest under proper conditions in a given time; and using this as a standard, determine empirically the number of grains of the other pepsins required to accomplish the same amount of work under like conditions, stating the results in per cent.

With this understanding as to their inaccuracy, we may utilize the result of the preceding tests. Having determined by this means the pepsin manufactured by Messrs. Parke, Davis & Co. to be the most active upon our market, digesting 2,000 times its weight of albumen, I have employed it as the standard in the succeeding tests.

In order to demonstrate the action of drugs upon pepsin and the digestive process, I have used a standard preparation containing:

Parke, Davis & Co.'s Pepsin, gr. $\frac{1}{10}$.
Coagulated Egg Albumen, 200 gr.
Acid. Dist. Water ($\frac{3}{10}$ per ct. HCl) 5 oz.

to which the following drugs have been added and the mixture digested at a constant temperature of 104° F. for four hours. The influence they have exerted can be determined by comparison with the standard preparation.

EXHIBITION OF INCOMPATIBLES.

Test No. 1. This contains gr. j sodium carbonate. The pepsin gr. $\frac{1}{10}$ was first treated with the soda, and both were then added to a standard preparation. As you may observe, the albumen is entirely undissolved. This shows that the activity of the pepsin has been permanently destroyed by the alkaline salt, and is not regenerated by the addition of acid.

This fact is well known to many of you, but it is by no means universally borne in mind. I have recently seen

large quantities of the alkaline salt ordered by prominent physicians in conjunction with pepsin, both in powder and as the glycerole.

Test No. 2 contains tr. ferri chloride η v, which interferes decidedly with the process.

Test No. 3 contains a $\frac{1}{5000}$ solution of the bichloride of mercury. This, in common with all decided antiseptics, exerts an inhibitory action.

It is a well-known fact that large percentages of alcohol precipitate pepsin from solution and destroy its digestive power. Alcohol is contained in the ordinary beverages in the following proportions:

Mild Beer, 2 to 3 per cent.

Light Wines (Claret), 8 per cent.

Whisky, Brandy and rum, 60 to 75 per cent.

On this account wines of pepsin are unscientific preparations.

Wishing to ascertain the effect of small percentages of alcohol I have prepared:

Tests No. 4 and 5. These contain respectively 1 and 5 per cent. absolute alcohol, both of which exert a decidedly inhibitory action.

Now, as these solutions contain in the one case 5 and in the other 25 minimis of alcohol to the ounce, the practical conclusion is that alcohol cannot, in efficient doses, be safely prescribed with pepsin.

Test No. 6 contains bismuth subnitrate gr. v., which exerts no deleterious action whatever, the deposit in the bottle consisting of the insoluble salt itself.

Test No. 7 contains ammonio-citrate of bismuth, gr. v.

In this the albumen is entirely dissolved, but the solution is milky from the precipitation of the oxychloride of bismuth by the action of HCl on the bismuth salt. In the presence of an alkali, however, the soluble bismuth salts form a colorless solution, and on account of this desideratum nearly all elixirs of pepsin and bismuth are alkaline. This at once destroys the activity of the pepsin, as you may see in

Test No. 8, which contains 3 j of an elixir of pepsin, bismuth and strychnine, and has no digestive value whatever.

Moreover, the reactions of pepsin with organic matters are not well understood, so that it is better to avoid such elixirs.

Test No. 9 contains tannin gr. v. The tannin and pepsin were first brought into contact and then added to the standard solution.

As you see, this has an injurious effect upon the pepsin.

A practical conclusion to be drawn from this is that wines used in connection with pepsin (wines of pepsin) should be detannated.

Test No. 10 contains quinia sulph. gr. iiij, which exerts a slight inhibitory action.

Test No. 11 contains saccharine gr. x. This decidedly interferes with the activity of the pepsin and should not be employed in connection with it.

Test No. 12 contains pulv. (willow) charcoal, gr. x, which has no deleterious action upon digestion, the deposit in the bottle being the charcoal itself.

In order to demonstrate the results obtained by ordering "saccharated pepsin" without specification, I have purchased specimens of four prominent druggists.

Four grains of each have been added to a standard preparation containing 5 ounces acidulated ($\frac{3}{10}$ per cent. HCl) distilled water, 200 grs. coagulated albumen and digested at a constant temperature 104° F. for $2\frac{1}{2}$ hours. The digestive activity of the same quantity of the different preparations is seen by the result to vary greatly.

The conclusions to be drawn, gentlemen, are obvious.

1. There is a difference, and a marked difference, in the activity of the many varieties of this drug. And it is to our own interests to decide for ourselves and to specify the variety we will employ.

2. Having a drug so delicate in its nature, whose reactions with other substances are so intricate and ill understood, we cannot be too particular in our method of its administration. The best results may be expected from pepsin when given alone, either in powder, or solution in glycerine, or in a freshly prepared solution in acidulated water.

While the action of pepsin seems to be catalytic, and a small quantity of it should digest an almost unlimited

amount of albumen, the conditions necessary for such action do not exist in the living stomach, particularly one in those conditions of disorder or disease in which this drug is indicated. We cannot then rationally expect a minute quantity of the drug to efficiently digest unreasonable amounts of improperly prepared food. Not only must a drug of high digestive activity be employed, but the dose must be sufficient. Of course the more active the drug the smaller may be the amount employed.

Since the condition of the stomach most favorable to the activity of pepsin would seem to exist at that time, it is best administered during or immediately after a meal.

412 W. Biddle St., Baltimore.

TRANSLATIONS.

THE CURE OF BACILLARY PHthisis.

Two years ago I commenced a work concerning the therapy of diseases of bacterial origin. For reasons which I cannot now particularly enumerate I discontinued it in order that I might restrict my attention to a part of the work, viz., the treatment of tuberculosis. Theoretically, I make the following deductions:

All attempts hitherto made to destroy the tubercle-bacilli in a body infested by them failed for the reason that they possess a greater power of resistance against antiparasitic agencies, than do the cells of the animal organism themselves.

Just as resistant as the tubercle-bacilli are against such remedies, just so susceptible are they to the influence of temperatures, be they either higher or lower than their *optimum* temperature.

All varieties of microbes, as was first proven by Pasteur by reducing the virulence of the bacillus of chicken-cholera, and as taught later by Tous-saint and Pasteur by their protective anthrax inoculation, are thus reduced by the action of increased temperatures.

The temperature limits within which the tubercle bacilli can flourish are

particularly narrow.* Were it possible now, by means of a discontinuous sterilizing process, to hinder the tubercle-bacilli in their development and thus to diminish their virulence, and were it possible for the human organism to bear the inhalation of highly heated air without detriment, then we would have obtained a means in such inhalations of combating bacillary phthisis.

Thus reasoning, I instituted experiments in various directions, with the following results:

1st. The correctness of the announcements made by other investigators concerning the temperature limits, and the effects of various degrees of temperature upon the tubercle-bacilli.

2d. The possibility of lowering their developmental and procreative capacity by means of discontinuous sterilization.

3d. That dry air heated to 150°-180° C. (302°-356° F.) may be inhaled by man without difficulty for several hours, and that such inhalations produce a hurrying of the pulse only during the first few minutes; a diminution in the frequency of respiration, with at the same time a deepening of the inspirations; an elevation of the general temperature of the body by $\frac{1}{2}^{\circ}$ -1° C.; the expired air shows a temperature of at least 45° C.; within an hour after completing an inhalation the temperature of the body returns to normal, and the general well-being remains undisturbed.

My experiments thus far instituted for determining the temperature of the air contained in the alveoli, and that of their tissues during an inhalation, have thus far not maintained any positive result.

I commenced a series of experiments, with the purpose of determining whether, and in which stage of the treatment, the virulence of the tubercle-bacilli contained in the sputa of consumptives, was, through such inhalations, diminished and thus removed, simultaneously with the reception of a tuberculous patient for treatment by means of highly heated dry air.

* Their *optimum* is 37.5° C.; at 38.50° C. their growth is only poorly; at 42° C. their development ceases entirely; if exposed to a temperature of 50° C., they die within one month, and one single "boiling up," i. e., 100° C. destroys them completely."

I began treating the first patient June 7, 1888. Since then I have treated a very large number of consumptives after the same manner, and moreover almost throughout with such favorable results, that, indeed, every doubt as to the correctness of my premises must be excluded. I intend shortly to have appear in print the clinical history of my first 50 cases, and thus place them at the disposal of my colleagues. Meanwhile I shall limit myself to a representation, *seriatim*, of the general results attained :

1. Removal of dyspncea.
2. Lessening of cough.
3. During the first few days, especially while inhaling, increased expectoration; later on considerable diminution, up to its complete disappearance.
4. Cessation of the fever.
5. Removal of night sweats.
6. Improvement of appetite.
7. Increase of strength.
8. In a short time, in most cases, a complete standstill of the acute process.
9. Less frequent occurrence, and later on entire freedom from haemoptysis.
10. Removal of catarrhal phenomena.
11. Clearing up of previously infiltrated parts.
12. Disappearance of bronchiectases.
13. Cicatrization of cavities.
14. An increase in weight takes place, particularly in such cases as previously had been much emaciated, and also in such in whom has occurred not only a standstill of the acute process, but already a beginning of the healing process. The absence of increase in weight at first is however easily explainable, when it is considered that patients treated according to my method are not subjected to any extra diet whatever, and that the inhalations require more or less bodily exertion.
15. Microscopic examinations show a gradual decrease of the elastic fibres in the sputa up to a total disappearance of the same, as also a rapid diminution of the pus corpuscles. During the early period of the inhalations, it seems to me that there occurs an increase of the bacilli in the expectoration; but later on there is shown a considerable diminution of the same.

That a cure can only be a gradual

process can easily be understood from all that has now been said. An immediate killing of the bacilli, by means of hot air inhalations only from time to time, cannot be made possible, but simply their discontinuous sterilization. The inhalations continue but for a few hours daily; only during this time are the bacilli exposed to weakening temperature, and after all this is not as high as would appear. For though the inhaled air at the mouth is at a temperature of 160° C. (320° F.), it cools considerably on its way to the lungs by being in contact with tissues and the blood circulating therein, of a temperature of only 37.5° C., as may be inferred from the fact that the exhaled air is warmed to 45° C. (112° F.). Now, inasmuch as this again must have become still further cooled down on its return passage from the lungs, we may infer that the air contained in the pulmonary passages during an inhalation must be at a temperature many degrees higher than 45° C.

The experience thus far gained enables me to give the following definite directions :

1. The effort must be made to increase the duration of the inhalations as rapidly as possible, beginning with half an hour twice daily, up to two hours or more twice a day. The more or less rapid lengthening of the sittings, as also the eventual shortening of the same, must be adapted by the observant physician to the individual condition of the patient. *Never must the inhalations last longer than is comfortable and agreeable to the patient.*
2. The patient must be encouraged to make the deepest possible, and later on, forced inspirations.
3. The temperature of the air during these inhalations, as indicated of course by the thermometer in the breathing tube, beginning with 100° , must as rapidly as possible be raised to about 250° C., which can be accomplished within two or three days without complaint on the part of the patient. The air on its way from the thermometer to the mouth is considerably cooled, and as the valves do not shut perfectly, outer air is also admitted—so that the inhaled air at 250° (thermometer) amounts in reality to only about 150° .

4. Should pulmonary hemorrhage (haemoptoe) occur, the inhalations must be suspended.

5. With haemoptysis the inhalations are to be continued, with the direction however that the inspirations must be as shallow as possible.

6. With acute pleuritic inflammation, rule 5 is to be observed, excepting when very severe, then rule 4.

7. After having finished a sitting, the patient must keep the room for at least half an hour; then only may he be allowed, and even encouraged—only however in favorable weather—to exercise in open air.

As a matter of course, treatment by means of hot air inhalations permits the fulfilling of any other therapeutical indication that may appear necessary, more especially the administration of antipyretics, etc.; contra-indications I know of none.

DR. LOUIS WEIGERT.
Internat. Klin. Rundschau. No. 51. 1888.

REGENERATION OF NERVES.

In a paper published in the *Arch. Roumaines de Méd. et de Chir.*, VAULAIR, of Liège, comes to the following conclusions:

"It is not impossible to obtain experimentally many times in succession the reproduction of the same nerve. Barring accidents, the only obstacle is the endoneurial thickening of the peripheral segment, due to the excessive hyperplasia of the sheaths of Schwann. But even this obstacle is easily obviated by centrifugal pressure of the new fibres. It is otherwise compensated, and this, at the time of the second reproduction by the considerable increase of their proliferating power.

"As to the regenerative aptitude of nerve, it is virtually inexhaustible. It may even be said that its activity augments in the same degree that it is submitted to new proofs. The nerves possess, in other words, the faculty of reproducing themselves indefinitely, in the same degree as connective or osseous tissue. They can always repair their losses of substance when they find before them a suitable conductor.

"There is here a permanent force, which the experimenter can dispose of at his pleasure, and which, well directed,

will produce uniformly the same effects, with the precision of a locomotive guided by an experienced engineer.

"The regeneration of nerves is then regulated by two conditions: On the one side, a blind force always ready to intervene; on the other, the mechanical influences which, according as they exert themselves in one sense or in another, sometimes bring about the accomplishment of a reparative work, and sometimes render it fruitless."

SERGIU says that pellagra was unknown in Europe until after the introduction of maize; and that those people who have adopted maize as the basis of their diet have been decimated endemically by pellagra. In 1888, the number of pellagrous persons in Roumania was 10,626.—*Arch. Roumaines.*

BOICESCO claims that there is a paludal form of erythema nodosum, following often repeated attacks, and occurring especially in the hot stage. It develops with the fever and disappears when the latter is cured. It has thus far been noted only in children.

—*Arch. Roumaines.*

VERNEUIL recommends that in the treatment of cold abscesses by the injection of iodoform ether, not more than five drachms of the latter be used, as the injection of a much larger amount caused iodoform poisoning.

—*La France Méd.*

HOSPITAL NOTES.

JEFFERSON HOSPITAL.

Clinic by PROF. GROSS.

TUBERCULAR DISEASE OF THE KNEE JOINT.

An interesting case illustrating this disease was first shown. The patient was a little girl, aged 7 years, and had the following history: A year ago she fell in the street and knocked her knee against a curb stone. Two weeks after she complained of starting and pain at night in the affected joint, which became enlarged and fixed. She was treated for this for some months by means of a plaster of Paris splint, but without much success, the knee being ankylosed and flexed at an angle of

about 65°. When brought before the clinic, the patient was etherized and an examination showed complete fixation of the affected joint with prominence of the patella, eversion of the foot, and contraction of the ham-string muscles. Gross considered the case a well-marked example of "tubercular disease of the knee joint," also known as "tubercular synovitis" or "white swelling." He pointed out that in advanced cases the ends of the bones were liable to be affected, notably the internal condyle of the femur. In the case under observation he thought this was the case, and accounted for the starting pains at night, which were due to irritation of the terminal filaments of the nerves supplying the joint. With regard to the pathology of the disease, Gross considered the trouble first started in the synovial membrane, which became inflamed and formed a favorable ground for the development and multiplication of the tubercle bacillus. If the joint were opened the synovial fringes would be found enlarged, pale and gelatinous looking, while microscopic examination would show increased development of small cell tissue studded with bacilli. The treatment proposed was to break down the adhesions by passive motion, the limb being brought into almost a straight line and placed on a posterior padded splint. Extension and counter-extension were applied, the patient being kept in bed. Gross strongly advised that the affected joint should be rubbed with the following ointment:

R Iodoformi 1 part.
Ungt simplicis 10 "
Ft. ungt. "To be well rubbed in night and morning."

He has seen the most excellent results from this mode of treatment, and thinks that iodoform has a specific action on the tubercular deposits. As to internal treatment he prescribed:

R Hydrarg. bichlorid gr. $\frac{1}{5}$.
Tinct. ferri perchlor M 10.
Aqua ad 3 j.
M.S.—"To be taken three times a day."

Hygienic measures should be carefully attended to. The child should have plenty of good food, good milk, fresh air and sunlight.

VASCULAR TUMOR OF THE FOREHEAD.

The next case was that of an infant 18 months old, who ever since two weeks after birth had a small, red tumor on the forehead. It commenced as a spot in the mesial line just above the root of the nose, and gradually increased until the date of the operation, when it had the size and appearance of a raspberry. Gross diagnosed it as an angioma or vascular tumor, and said it belonged to the class of "mother's marks" and "portwine stains." It was nearly always congenital and was due to capillary dilatation or aneurism. As to the methods suggested for the removal of those tumors he mentioned vaccination if the situation were favorable, implantation by puncture with a needle; the galvano-cautery, ligature, irritating injections, and strangulation with hare-lip pins. Gross selected the latter method. He transfixed the tumor with two hair-lip pins at right angles to each other, and having divided the skin round the base he passed a ligature beneath the pins encircling the tumor. The ligature was then tied as tightly as possible, the object being to cause strangulation and gangrene of the tumor. He laid stress on dividing the skin, as it lessened the pain and expedited the operation.

REMOVAL OF FIBROID TUMOR OF THE BREAST.

This operation concluded the clinic. The patient was a married woman, aged 28 years. Three weeks ago she noticed a small lump in the right breast above the nipple, and to the inner side of the gland. It grew rapidly until it reached the size of a walnut. Examination showed it to be fairly hard, freely movable and not connected with the subjacent structures. There was a good deal of pain on pressure, of a neuralgic character, and influenced by certain states of the weather. Gross said these tumors for this reason were sometimes called "irritable tumors of the breast," and were generally found in spare women. The patient having been etherized an incision parallel to the ribs was made, the tumor was found just beneath the skin, and readily enucleated from its capsule. The wound was treated antiseptically, a drainage tube being inserted.

UNIVERSITY HOSPITAL.
CASE OF HEMIPLEGIA.

PEPPER exhibited at a recent clinic a male patient aged 60 years, a laborer by occupation. He was brought to the hospital in the ambulance eleven days previously, having been found in an unconscious condition. On admission, in addition to the unconsciousness, he had right hemiplegia, he could not talk, his pupils were unequal, breathing sterterous, and suffering much from restlessness, which yielded to the bromides and sulphonal. His condition when before the clinic showed that, although the coma had passed off his mental powers were dull; there was no aphasia. His face was but slightly affected. The paralysis of the right side showed signs of improvement, particularly in the hand and arm. The patient had been a hard drinker all his life, but Pepper was unable to discover any vascular changes, nor was there any affection of the heart or lungs. The urine was normal and contained no albumen. A diagnosis of cerebral hemorrhage affecting the left side of the cortex was made. With reference to prognosis, Pepper stated that the healthy state of the heart, lungs and kidneys warranted his saying that the man would recover, although his convalescence would be slow. The treatment proposed was to keep up the anodynes until all traces of restlessness disappeared; to employ counter-irritation to the back of the neck by means of the actual cautery, and to place him as soon as possible on a combination of hydrarg. bichlorid. with potassii iodid.

REMOVAL OF A BURSAL TUMOR.

ASHHURST, at his clinic, removed a bursal tumor about the size of an orange from the left knee of a man aged 32 years. It was explained that the tumor was similar to that known as "house-maids' knee or misers' elbow." The various operative measures employed were explained, such as injecting irritating fluids into the sac, puncturing the tumor, the use of setons, etc. Ashhurst decided in the case under observation to enucleate the tumor; an incision was made under antiseptic precautions over the patellar region to the extent of about four inches; the limb

having previously been rendered bloodless by means of Esmarch's bandage and tourniquet. The skin was carefully reflected and the tumor, which was intimately connected to the patella, was removed. The edges of the wound were brought together by a suture, a drainage tube inserted, and an antiseptic dressing applied. This, Ashhurst explained, was the radical method of dealing with such affections.

LACERATION OF CERVIX. OPERATION.

GOODELL, at a recent clinic, operated on a patient, aged 36 years, for laceration of the cervix uteri. She had had two labors at term, and one miscarriage. After the last labor she began to complain of weakness and debility, with profuse leucorrhœal discharges.

There was a history of pain in the left ovary and stoppage of the menses. Examination showed that the cervix and perineum were badly torn. The uterus was found to be fixed in the pelvic cavity, which Goodell said was proof that there had been a previous peritonitis causing disease of the left ovary and resulting in stoppage of the menses. He pointed out that the leucorrhœa showed the existence of an endometritis—the mucous membrane of the uterus being covered with vegetations giving rise to the profuse discharge. As to treatment, he proposed to curette the endometrium so as to cause contraction of the womb by the irritation set up. This, he said, was his invariable rule in cases of profuse leucorrhœa. Then he denuded the edges of the torn cervix, brought them into perfect apposition and secured them by sutures. The operation was done with strict antiseptic precautions, a weak solution of hydrarg. bichloride being used.

When should we operate for laceration of the cervix? Goodell says: "When the laceration is not extreme, and the lips lie parallel, do not operate. If there is erosion or eversion of the edges of the tear an operation is indicated."

CONNECTION BETWEEN CANCER AND LACERATION OF THE CERVIX.

GOODELL states that if a laceration of the cervix occurs in a patient of middle age, in whom there is a family history

of cancer, the disease is almost certain to be set up. He mentioned in this connection, a case in which he recently operated for laceration of the cervix. The family history was particularly interesting. Two of her aunts died of cancer of the cervix, her grandmother died of cancer of the breast, one of her uncles died of cancer of the stomach—with this record he had no hesitation in operating, as the patient would be extremely liable to develop the disease when she reached the climacteric period

PENNSYLVANIA HOSPITAL.

CASE OF ANEURISM OF BOTH POPLITEAL ARTERIES.

HUNT presented a case with the following interesting history: The patient, a middle aged colored man, was first admitted to the Pennsylvania Hospital in July, 1881, suffering from aneurism of the right popliteal artery, the result of overstraining himself at the back of the affected knee joint. Digital compression was employed by means of relays of students and kept up for three days, until the pulsation ceased, when the patient was discharged cured. On the 2d of February of the present year, while walking, he slipped, and in trying to recover himself a similar accident occurred in the other leg. On admission to the hospital a well-marked aneurism of the left popliteal artery was diagnosed and the following treatment was carried out: The limb having been well rubbed with alum and alcohol so as to strengthen the skin, a tourniquet with eleven points of pressure was applied. Each point consisted of a steel rod with an oval shaped head. The points were only allowed to remain in contact with the skin for twenty minutes. In fifty hours all pulsation ceased in the tumor and the cure was accomplished without the slightest abrasion of the skin. Hunt demonstrated the many advantages of the multiplication of pressure points over that of the single point tourniquet or digital pressure, which he stated was always uncertain, no matter how carefully carried out, as no two persons pressed alike.

DIABETES FROM A BLOW ON THE ABDOMEN.

HUNT brought before his clinic a boy aged 17 years, who some months pre-

viously sustained an injury to his abdomen from a blow with the handle of a bread cart. The case had all the symptoms of diabetes—the urine showed a sp. gr. of 1032 and, with Fehling's test, the presence of abundance of sugar. Hunt considered the case unique from the character of the injury to the abdomen, there being no history of any injury to the head. He said, however, the possibility of the boy having had diabetes before the blow on his abdomen was not to be forgotten.

CONSERVATIVE SURGERY OF THE HAND.

HUNT exhibited a boy aged 6 years. Three weeks previously he sustained a severe injury of his right forearm through an iron boiler falling on it. An extensive compound fracture in the region of the wrist was the result, though, as Hunt pointed out, there was a good hand in front. The injury was so great that sloughing seemed imminent, so that constant irrigation was kept up until three days before his appearance at the clinic, when it was deemed advisable to stop it, as the tissues were getting flabby. Hunt said: "At first sight the extent of the injury was so great, and the destruction so complete, that nothing but immediate amputation would suggest itself to a surgeon, who had not an extensive experience in this class of injuries. But it seems to me there is a great deal of unnecessary surgery done on hands and fingers. Owing to the great reparative power in the upper extremities we can take risks, which in the lower limbs we would not think of for a moment. Besides artificial appliances for progression and locomotion are much more perfect than anything that has been yet produced to take the place of the human hand."

GERMAN HOSPITAL.

FRONTAL ABSCESS.

DEAVER presented a young girl about 14 years old, on whom he had operated about ten days ago for an abscess in the frontal sinus, displacing the right eye ball outwards and forwards.

An incision was made parallel to the superciliary ridge from the supraorbital notch inward and forwards. After piercing the bone and evacuating the pus, the pus cavity was thoroughly

cleaned with an antiseptic solution; then a counter opening was made a little below and inwards to the inner canthus of the eye, on the nasal bone, and a drainage tube inserted.

Patient is doing well; wound of incision is healthy and the drainage tube discharging very little pus; eye a little prominent and displaced to the outside.

UNUNITED FRACTURE.

DEAVER presented a patient who sustained a fracture of the right radius about four months ago. Pronation and supination was painful and very much impeded, and prevented patient from work.

The diagnosis of ununited fracture was made, and he concluded to make an exploratory incision; when it was found that a large mass of callus was located in the interosseous space, which limited motion considerably, and the fracture was overriding.

The mass of callus was chiseled off and the fracture reset; then the wound was thoroughly washed with a solution of bichloride of mercury $\frac{1}{1000}$, sutured and dressed antiseptically.

He presented the patient in his next clinic, and the wound was healthy without a drop of pus; passive motion was performed, which is perfect, and the patient is doing well.

ALLEGED MEAT-POISONING.

WOLFF described the cases of supposed meat-poisoning, which had been noticed in the daily papers, in his clinic on Saturday, February 23, as follows:

The child of a German was brought to the hospital by her mother. The child had vomiting, was pale, but had no fever. The resident put the child to bed, gave some remedies to check the vomiting, and left word for me to see the child the next morning; but the child was seized with convulsions during the night and died.

On the next day, in the afternoon, the mother came with one of the other children while I was there. The child presented the same symptoms as the first. It started to vomit, and the vomited matter consisted of a glairy mucous mass mixed with bile. On examination, there was nothing special found—no fever, no redness of the

fauces—and the examination of the vomited matter was negative.

I ordered oxalate of cerium and bismuth, and stopped the vomiting; but the next morning convulsions set in. I gave bromide of potash and chloral; but the spasms followed again in the evening, and the child died the next day, Saturday, 16th.

On post-mortem examination, nothing decisive could be found; no poison and no inflammation of the stomach. (The post mortem was made by the coroner's physician.)

On further investigation, it was learned that the children had eaten of a sausage which was given to them by a butcher. The oldest child, 7 years old, which died first, had eaten half of it; the second one, four years old, had eaten one-quarter; and the rest was eaten by another child of the family.

We now thought that possibly the death of the children was due to a chemical poison which had developed in the sausage; but the diagnosis became clear on Sunday, when the mother brought in two more of the children, who, on examination, were found to have redness of the fauces, and developed an eruption of scarlet hue on the skin within a few hours, which spread rapidly over the whole body. It was clear now that the children had scarlatina of a mild type; whereas the others had malignant scarlatina, where convulsions set in and death supervened before the eruption had time to appear.

That it is possible to mistake malignant scarlatina for meat-poisoning is evident when we bear in mind that the symptoms of meat-poisoning closely resemble those of scarlatina, sometimes even to the eruption; though often there is an eruption of urticaria.

That it is scarlatina, and not meat-poisoning, is evident from the fact that one child after the other was infected, and that even the child is affected which had not partaken of the sausage; and from the throat symptoms in the last two cases.

PHILADELPHIA HOSPITAL.

MUSCULAR STRAINS.

MCCLELLAN says, that in muscular strains he knows of nothing better than the alternate application of heat and

cold as a stimulant to the lymphatics to carry off inflammatory effusion. A firm bandage should be applied to the affected limb, and after a few days the patient should be instructed to step on a cushion and then on the floor, so as to accustom himself to the act of walking. He considers lotions and liniments of very little use in the treatment of these very troublesome injuries.

FISTULA IN ANO.

MCCLELLAN cautioned his clinic against using a stiff probe in packing a fistula; the tissues in the ischio-rectal fossa are so yielding that a false passage might easily result. He advised that a soft catheter should be employed for this purpose.

MEDICO-CHIRURGICAL HOSPITAL.

TREATMENT OF CONDYLOMATA.

STEWART says: "When you have to deal with condylomata of specific origin, apart from your internal remedies, local treatment is always necessary. Applications of nitric acid, the acid nitrate of mercury, nitrate of silver or chromic acid, all are to be recommended, the strength of each being regulated by the circumstances of each case. In the intervals a dusting powder of equal parts of subnitrate of bismuth and calomel is of much value in absorbing the moisture. Unguents are not advisable, as they tend to increase the irritation."

CANCER OF THE UTERUS.

STEWART, at his clinic, recently presented a patient, aged 55 years, whose history was as follows: She had been married 38 years, and had several children, but no miscarriages. Eleven years previously her youngest child was born after a protracted and difficult labor. For the past three years she had been failing in health, and had suffered much from pain in the uterine region, with constant offensive discharges and occasional attacks of hemorrhage from the vagina. Examination revealed the existence of an indurated mass filling up the pelvic cavity and involving the peri-uterine cellular tissue. The cervix was also indurated and deeply ulcerated. Stewart, after consultation with his colleague, Montgomery, on the

case, said that the disease had gone entirely too far for extirpation of the uterus to be thought of. He was of opinion, had the patient been seen when the disease first commenced, the probabilities were that she would have lived for years after the removal of the uterus and appendages.

"Pain, hemorrhage and offensive discharge, sum up the symptoms of a case in which you may apprehend cancer of the uterus."—STEWART.

CONVULSIVE SEIZURES FROM CRANIAL DEFORMITY.

WAUGH, at his weekly clinic, presented a boy, aged 5 years, who had had several attacks of convulsions since he was eighteen months old. In none of these attacks was there loss of consciousness until January 27, of the present year, when the patient had four severe attacks in which he became unconscious. The family history was bad. Waugh called attention to the peculiar shape of the boy's head, which was large, with round forehead, and markedly flattened posteriorly. This flattening of the head was considered to be due to the fact that the child was allowed to sleep on his back on a hard pillow. Waugh mentioned some facts connected with the habits of the Flat-head Indians. A similar custom exists among the peasantry of France—the flattening in these cases being caused by pressure in infancy, and considered a mark of beauty. He made the interesting statement that in all his experience he never knew persons with unsymmetrical heads to be perfectly normal in their mental faculties. He said: "These cranial deformities have a great influence in producing nervous disorders. Marion Sims found in treating a case of infantile tetanus, that the child had lain on its back until depression of the occipital bone was produced. When this pressure was removed the child recovered. In this case, gentlemen, I think the predisposition to convulsions, which have been produced by various exciting causes, is explained by the flattening of the occiput and by heredity. With regard to treatment, I think the indications are to enforce the laws of hygiene; to give the child plenty of fresh air, and good, nutritious

easily-digested food; to regulate his bowels and teach him to go to stool at a certain hour every day; to promote a healthy action of the skin by means of hot salt water baths, which are a most excellent therapeutical agent. They can be easily improvised by dissolving some rock salt in warm water and applying to the skin by means of a rough towel. As the child is somewhat anaemic, I will give him three drops of the tincture of perchloride of iron in a wineglassful of milk before each meal."

MITRAL INSUFFICIENCY AFTER ACUTE RHEUMATISM.

In a case occurring in a girl, aged 11 years, Waugh mapped out the following line of treatment: Flannel should be worn next the skin and every possible precaution observed against cold and damp. Rheumatic attacks should be checked immediately by salicylates and alkalies. Diet should be carefully regulated and the amount of fluid taken into the system reduced to a minimum, the object being to prevent overaction of the heart and thus lessen the tendency to fatty degeneration. Ten drop doses of syrup of the iodide of iron were given three times a day to diminish the endocardial deposit. Waugh thought the compensating hypertrophy of the left ventricle was just sufficient and that every effort should be made to keep it so.

FOR DYSPNEA.

For the dyspnoea of a chronic pneumonia, WAUGH gave eserine and syrup of wild cherry. Opium, he says, should be avoided as long as possible; for, when the physician begins to give that drug to this class of patients, he is only accelerating the disease.

FOUND IN AN AMPUTATED STUMP.

A patient came to PANCOAST's clinic, complaining of great irritation in the stump of his left forearm, the amputation having been performed some time before by another surgeon, on account of a wound caused by the explosion of a gun. Pancoast found with the probe what he supposed to be a piece of necrosed bone; but upon cutting down on and removing this offending body,

it was found to be a piece of the gun-barrel fully two inches long by an inch in width. At the same clinic, Pancoast amputated the forearm of a man of sixty, for a sarcoma involving mainly the hand.

HEART-DISEASE IN WOMEN.

STEWART thinks that organic diseases of the heart are so fatal to pregnant women that he would earnestly advise a woman with such a lesion not to marry.

A CASE OF TAENIA.

The cases of tape-worm in which definite symptoms are observed, which can with any degree of probability be attributed to the presence of the parasite, are so rare that the following case may have some interest:

Carrie Hogins, aged 25; born in Pennsylvania; widow; one child; mulatto. Suffered for two years, during which she has been passing joints of taenia.

Every morning, on leaving her home, she has a sense of compression, a "girdle," about the level of the nipple; lasts till 10 A. M.; after which feels well; roaring in ears at the same time; memory poor; some nausea, preceded by rumbling and "movements" in the abdomen, probably due to knowledge of worm's presence; appetite too good, especially at dinner; tongue normal; bowels fairly regular; menses sometimes very free, lasting a week; sometimes insomnia; vision defective; right eye quite so; worse when she has headaches, which are frequent, sometimes daily. Lately has been unable to sit out of windows to clean the outside, on account of vertigo. She was ordered one ounce of epsom salts at bedtime, one drachm of oleoresin of male fern in capsules on rising, with a drachm of ether, in simple elixir, to be taken at the same time; and two hours later, an ounce of castor oil, with thirty drops of turpentine. No food was to be taken until the oil ceased to operate.

The next evening she brought me the worm, nearly twelve feet in length, with the head. It was unbroken, having been passed into a bucket of warm water.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, MARCH 1, 1889.

WILLIAM F. WAUGH, A.M., M.D., EDITOR.

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EDITORIAL.

HOMES FOR AGED PERSONS.

IN our last issue we gave some reasons for our belief that the private insane asylum should be abolished. The principal objection to it is that the relations between the management and the patients are not those which are calculated to bring about the best results in the curing of the insane. There is another institution, however, to which the objection may be made that these relations are not calculated to favor a prolonged residence in the place, but rather the contrary. This is the private Home for Aged Persons.

One of these is located near the city, in a rather desolate looking place, to which access is to be had by means of a road knee-deep with mud. It is a home, so-called, for aged people of both sexes. If any of our readers have any old parent or relative who has outlived her usefulness and is in the way, or has by age become troublesome, he can have her admitted to this home, on payment of three hundred dollars; this sum relieving the relatives from all further obligation or expenses. In case of extra feebleness or fatal disease, it may even be possible to obtain admission for a smaller sum.

We can readily fancy the bargain by which some aged mother is admitted to the privileges of this beneficent home. How the experienced eye of the proprietress studies the features of the prospective inmate and calculates the probable duration of her life. Has she any disease, any cancer or bronchitis which promises to make her remaining days short? Then we can afford to take off a few dollars. Does her form indicate undue tenacity of the vital force? Better be careful, she may prove a bad bargain. At last the terms are settled, the money paid; the son turns away with a sigh of relief, that that nuisance is done with, forever; while the miserable relic is driven off to her last earthly home. What for? To be tenderly cared for during her last days, to be nursed and soothed and kept in such a degree of comfort as is still possible? But every day she lives is just so much off the profit! And if she outlives the profit, and lasts till her keep has cost all of her three hundred dollars, and she begins to eat into the surplus left by more fortunate inmates? We very much fear that the case which is admitted with the prospect of a speedy death, but which lives for years, has not much loving kindness, not much tender nursing, to boast of.

Besides, there's a possible way to get out of a bad bargain. If the relatives are not wholly brutalized, and pay an occasional visit to the "home," the complaints of the inmate may even stir into existence a spark of humanity in their hearts. If only she can be made to complain with sufficient bitterness, the relatives may remove her, forfeiting the entrance fee; as no money is ever returned.

During a visit we made to this home some years ago, we noticed a very significant shrinking when the "nurse," a tall, powerful woman, who went about

with a long stick, came near any of the patients. There was also a remarkable alacrity in the way these old people moved when she told them to do so. It certainly did not look as if rheumatism were prevalent among the inmates. Meanwhile, the crash of dishes in a neighboring room, where an alleged lunatic was confined, enlivened the scene, and doubtless induced the other patients to be thankful, or otherwise, that reason was still left to them.

Would any of our readers desire to be sent to such an institution, not an incorporated charity, with managers, etc., but a private enterprise, conducted as a business, and presumably on business principles? Beside such a place, a state asylum for the insane, like Dixmont or Warren, would be a haven of rest.

We make no charges of cruelty towards the managers of this home. We simply wish to say, and that most emphatically, that this is the sort of an institution which ought not to be in existence; that a home where every act of kindness which makes an inmate live a day longer or renders his or her lot less dreary, is simply so much money out of the proprietor's pocket, is a horrible thing. That an enterprise conducted on such principles can find patrons enough to keep it in existence is a blot on humanity.

ANNOTATIONS.

INSPECTION OF MILK.

It is a matter of universal regret that the Legislative committee has reported adversely to the bill providing for the inspection of milk. The appearance of delegates from the dairies opposing the bill was, in itself, a strong argument in its favor. It is still possible that the bill may pass, in spite of the negative report of the committee. Nevertheless, we believe that the proper place for the inspection of milk is in

the consumer's residence. Even if the milk be pure and sweet when inspected at the dairy or the market, it may be quite altered by the time it reaches the consumer. It is not very difficult to teach an intelligent person to test the milk for himself; and this should be the duty of every practising physician.

THE VIRGINIA BOARD.

The case against this board seems to grow stronger every day; and the evidences of partiality and unfair dealing multiply. The Medical College of Virginia first proclaimed that the board was packed in favor of a rival school; but the outcry of interested motives was so great that she dared not openly oppose the board. One of the Virginia journals was courageous enough to speak up for the honor of the State. In an editorial, Dr. Bryce boldly denounced the board for its favoritism, in giving a "nominal examination of ten minutes." Since then Dr. Detwiler comes out in the *Register*, with the charge that the examinations are conducted in the interests of the Virginia medical schools, rather than in those of right and justice. It certainly seems remarkable that the University of ~~Virginia~~, which is located at a country village, with no clinics worthy of the name, should be better able to instruct her students than the great schools of New York and Philadelphia. We understand that Virginia students learn by rote from text-books, like children in a primary school; and it may be that this method enables them to pass a better "book examination." But will any one claim that this system gives as good practitioners as that in which hand-work and clinical teaching take the place of this schoolboy system? We can only conclude that the Virginia examinations are not conducted upon correct principles; or else the universal belief in the importance of clinical teaching is a mistake.

*Read "Sun
beam"*

POSSIBLE POISONING CASE.

A case has been reported in the daily press, which was thought to be one of poisoning. Several children were taken sick shortly after partaking of "half-smoked" sausage. Two have died, and

two others are lying very ill at the German Hospital. The symptoms are said to have been vomiting and retching, followed by the appearance of a red rash covering the body. Violent gastric pain ensued, with diarrhoea. The temperature rose to 104° F., and the pulse to 140, in one case. Convulsions occurred later, and the child died in a spasm. The physician attributes the symptoms to poisoning by ptomaines.

If this be correct, the poison must differ from that found in milk. In fact, there is danger of going too far in attributing such cases to ptomaines. The possibility of poisoning by design must not be wholly forgotten.

As to this half-smoked sausage, it is a food of doubtful antecedents. Many a belated physician has met the vendors of hot sausage who appear on the streets in "the wee sma' hours ayont the twal." We have even partaken of this viand with relish. One day we were called in to see a sick child in a house where these midnight delicacies were being prepared; and we saw—and smelt—enough there to make us ever afterwards forswear these sausages.

The odor of these sausage factories is enough to warrant one in attributing any amount of sickness to their product. The best of this sausage is said to be made of bob veal; the composition of the worst may be guessed; but trichina and cholera morbus form important constituents.

[NOTE. It will be seen by Dr. Wolff's account in another column, that these were cases of scarlatina.]

DR. J. J. MULHERON has resigned the editorship of the *Medical Age* in order to devote more time to his lectures. This speaks well for the Michigan College of Medicine and Surgery, in that Dr. Mulheron places his chair above the editorial tripod. In one way, perhaps, this is a wise move. If one wants to do a thing well, he must not dissipate his energies on side issues. But on the other hand, the training of the editor is the best possible preparation for the lecturer. Keeping in touch with the profession, reviewing the work which is constantly coming into print all over the world, and keeping up the actual practice which enables one to discrimi-

nate and keeps him from becoming pedantic, are the best means of keeping in "condition" as a lecturer. This involves the necessity of doing three men's work; but, as Horace Greeley said, if a man can't do that, he must not expect to succeed nowadays. Dr. Mulheron will be sadly missed. His bright wit has made the *Age* one of the most popular of our medical journals. Dr. B. W. Palmer, who succeeds him, will have a hard task to keep the pace set by his predecessor; though his first number is quite up to the mark. We extend our best wishes for future success to both gentlemen.

The *Montreal Medical Journal* comes out in strong opposition to the course of instruction in the Canadian medical schools. The requirements of the board of examiners necessitate so much didactic work that the student has no time for laboratory or clinical study. Of the twelve medical schools in Canada, only one or two can claim to be thoroughly equipped, and the usefulness of these is greatly curtailed by the students being compelled to spend so much time in listening to didactic lectures.

Although we have doubled the number of copies reserved for our office, it seems to be impossible to keep our files intact. We are out of Nos. 542, 548, 549, already, and have numbers of requests for them on file. Any of our subscribers who may have an extra copy of either number mentioned, will confer a favor upon us by sending it to the office. And our readers will oblige us by renewing their subscriptions promptly and not asking for back numbers unless specially desired.

The *Therapeutic Gazette* fires a broadside at Dr. William A. Hammond and his newly opened Sanitarium; which we hope will open up the question of physicians advertising. At present, the law of the A. M. A. is so curiously constituted that it is ethical for the poorly paid specialist to advertise, but not for the wealthy family physician. What folly! Better have no law on the subject, and leave each to settle the question according to his own sense of propriety.

LONDON LETTER.

CHRONIC ALCOHOLISM.

THE convinced and uncompromising enemies of alcohol in every and any form will not find the perusal of the remarks made during the debate on the pathology of chronic alcoholism at the Pathological Society of London altogether to their taste. The President, Sir James Paget, commended the caution which had been exhibited during the discussion, and contrasted it with the positive and dogmatic statements made "elsewhere" by those who possessed no real knowledge of the subject. The truth appears to be that alcohol is a tissue poison, acting locally and directly, and Dr. Payne's really brilliant suggestion that alcohol is most nearly allied, in its mode of action as a chronic poison, to the mineral poisons (lead, arsenic, copper), or the virus of the chronic specific diseases, appears to me to be the most important idea which the debate has to give. Why alcohol picks out the brain and the peripheral nerves, leaving the spinal cord unaffected, or at least very rarely attacking it, cannot be explained. Neither can we explain why morphine, strychnine and lead pick out certain areas of the nervous system. Neither pathology nor vital statistics, so far as we have yet gone, afford any evidence that alcohol, taken as a beverage properly diluted, at or after meals, produces any injurious effect on the human organism as a whole, or on those organs—the brain, the nerves and the liver—which appear to be most sensitive to its influence. Intemperate drinking, long continued, produces wasting of the brain, peripheral neuritis (?—wasting of the nerves), and cirrhosis of the liver. Dr. Savage made a very good speech on the first head. Adopting a general classification suggested by Dr. Payne, he divided cases of insanity due to alcoholism into three classes or stages: (1) disorders of function, (2) malnutrition, (3) degeneration. He suggested that a fairly large number of persons suffering from hallucinational and delusional insanity owe their delusions and hallucinations to peripheral neuritis of alcoholic origin. In the

third stage there is a general wasting of the brain and a progressive loss of power of all the faculties. He rejected the theory that general paralysis is commonly due to alcoholism. Though alcoholic excess is common in the history of general paralytics, it only appeared to be the sole cause in seven per cent. of the cases; ranking in this as less dangerous than lead-poisoning. The general conclusion from his remarks was that the proportion of persons rendered insane by drink was very small, though a great number predisposed to insanity are pushed over the border-line by alcoholic excess.

Dr. Payne, in summing up, said that the practical conclusion to be drawn was that the injurious effects on the nervous system and on the liver of an injurious quantity of alcohol is almost in direct proportion to the degree of concentration in which it is ingested; a statement which must be further qualified by adding the condition that the injurious quantity must be frequently ingested before any structural tissue changes are discoverable.

CHRONIC RENAL DISEASE—GOUT—ALCOHOLISM.

An explanation of the immunity of the kidney is probably afforded by the fact that alcohol only produces structural changes when concentrated. It reaches the liver in a comparatively concentrated state and produces cirrhosis. Before it reaches the kidneys it is much more diluted, and does not lead to any morbid change there. Some evidence was indeed adduced from the Guy's Hospital post-mortem records, to the effect that drunkards, dying with cirrhotic livers, had hypertrophied kidneys; and this was supposed to be a case of true hypertrophy from over use. Admitting this theory to be well founded—which I do not admit—it would afford convincing evidence that alcohol does not injuriously affect the kidney any more than pregnancy injuriously affects the heart.

Some statistics are worked out by Dr. Edward Casey, of Windsor, from returns furnished to the Collective Investigation Committee of the British Medical Association. It is a kind of supplement to the big report on chronic

alcoholism, which certain scoffers professed to interpret as recommending chronic intoxication. What the report actually showed was that the temperate people had an average of 62 years of life, the intemperate of 52 years, and the total abstainers of only 51. This somewhat absurd result, however, was explained by the fact that a great preponderance of the total abstainers were young people. With which somewhat cold comfort, and the further statement that total abstainers over 40 showed an expectation of life at least four years longer than the habitually intemperate, the teetotallers must make shift to be contented.

To revert to Dr. Casey's statistics. He has brought additional evidence in support of the theory that chronic Bright's disease is closely related to the gouty diathesis. He found that, of 2399 persons (excluding total abstainers and persons under 40 years of age), 529 persons were gouty, and 1870 were not gouty. Fifty of the gouty persons died of Bright's disease, but only 66 of the non-gouty. The gouty therefore gave a mortality of 9.5 (nearly) per cent. from Bright's disease; the non-gouty a mortality of 3.5 per cent. from the same cause. The statistics were founded upon a set of returns on alcoholism, and contained therefore a very large proportion of intemperate persons. The influence of alcohol in the production of Bright's disease is therefore very indirect, and operates only in the case of the habitual use of beverages which tend to produce gout.

NERVE-GRAFTING.

Mr. Mayo Robson, of Leeds, has performed the new operation of nerve-grafting with, at any rate, partial success. The patient was a girl, aged 14, who had a tumor just above the annular ligament of the wrist. After excision, it was found to be connected with the median nerve, and it was apparent that a portion of this nerve had been excised, the patient having lost sensation in the area of the hand supplied by the median. Forty-eight hours later the operation of grafting was performed. Mr. Robson utilized the posterior tibial nerve from the thigh of another patient upon whom a colleague was operating.

The posterior tibial was quickly dissected out, without bruising, from the amputated leg, placed in warm carbolic solution during its transit to the forearm, and inserted in the wound between the two ends of the median nerve. A single fine suture at each end, passed through the thickness of both nerves, kept the graft, which measured $2\frac{1}{2}$ inches, in place. In thirty-six hours sensation had so far returned to the anaesthetic area that the touch of a pencil could be localized. Improvement in sensation subsequently took place more slowly. Mr. Robson showed his patient to the Clinical Society of London lately. Though there was still some numbness and tingling, sensation was remarkably good. There was, however, a bulla on the tip of the index finger, and it cannot yet be said that the cure is entirely successful. Mr. Bowlby, who gave some excellent lectures on nerve-wounds at the College of Surgeons a year ago, said that the amount of sensation was greatly in excess of what might have been expected if neither grafting nor suture had been performed; though, even under conditions so apparently hopeless, a considerable restoration of function had sometimes been observed. Of the muscles supplied by the median, the abductor and flexor brevis pollicis could be made out to retain some power, although much wasted. It is to be hoped that Mr. Robson may be able to watch this case, so as to give its subsequent history a year hence.

CÆSAREAN SECTION AND PORRO'S OPERATION.

Dr. Murdoch Cameron, of Glasgow, has recently published a full report of his case of Cæsarean section. The woman was a primipara, aged 27, presenting well-marked rickety deformity. The conjugate diameter at the brim did not exceed $1\frac{1}{2}$ in. Seven silk antiseptic stitches were passed through the outer two-thirds of the uterine wall. When drawn tight, these completely checked the bleeding. The patient made a good recovery, and left the hospital with her child five weeks after the operation. In this case the woman only applied after labor had set in. Dr. Berry Hart, of Edinburgh, appears to hold that the

selected operation ought to be performed in these cases before labor sets in. This is especially the case with Porro's operation, as delay until the last moment, when the development of the lower uterine segment, abdominal position of the bladder and formation of the circular vein force the surgeon to make the incision high up, interfere with the formation of the pedicle, and may lead to serious hemorrhage, owing to wounding of the circular vein.

THE NEW COUNTY COUNCILS.

The business of the counties of England, both judicial and administrative, has hitherto been managed by the Magistrates, who are nominated by the Lord Chancellor. The Local Government Act passed last year transfers the bulk of the administrative functions to County Councils elected by the rate-payers. The first elections were held last month (January), and the Councils get to work on All Fools' Day; but as the electors have generally chosen men who have experience in public business, there is no particular reason to fear that they will act more foolishly than other elective bodies. A fair sprinkling of medical men have been elected. The County Council will be the sanitary authority for the area; but its powers will be mainly supervisory, and will be chiefly confined to stirring up the parishes to do their duty. Each Council will have the power of appointing a medical officer of health, to advise it, and will also appoint the coroners. The new act is theoretically an improvement on the old system, and would have been a great improvement if passed as introduced by the Government, after consultation with the leading authorities—legal, official, financial and sanitary. It was, however, so whittled during the endless debates, kept up month after month by the Gladstonian obstructionists, that it will only too probably lead to great extravagance in administration, if not to inefficiency. It is said that the Reform party, which is now headed by Lord Salisbury, contemplate backing up Mr. Ritchie, who passed the Act, in the session of 1890, when a new bill is to be introduced, to explain, define and extend the present Act.

PRURITUS ANI.

I do not know whether the following simple treatment for pruritus ani is well known or not. If not, it deserves to be, as it is very often effectual; it has even been described to me as infallible. Wash the parts at night thoroughly with warm water and plain soap, and dry thoroughly. Then apply the compound tincture of benzoin (Friar's balsam) with a camel's hair brush, and let it dry. The application gives instant relief, and must be repeated every night for several nights, when the itching will often be found to have disappeared completely and permanently.

PILOCARPIN IN ICTERIC ITCHING.

Dr. Goodhart, of Guy's Hospital, was led, by reflecting that a drug which was so uniformly productive of speedy diaphoresis must profoundly modify the functions of the skin, to try the hypodermic injection of pilocarpin to relieve the intractable itching of chronic jaundice. He reports that, in every one of six cases in which he has tried it, it has been successful. The dose he used was one-third of a grain; which, it would appear, has to be repeated only every third day.

EXIT CODEINE.

Dr. Parry's theory that codeine had some mysterious influence over diabetes has probably received its final quietus from some observations made by Professor Fraser, of Edinburgh. The chemical constitution of codeine suggests that it is only a weakened morphine: morphine in which the hydrogen of the hydroxyl is displaced by methyl. Thus, if morphine be written $C_{18}H_{21}O_2 \cdot N$, then codeine is $C_{18}H_{19}O_2 \cdot N \cdot (CH_3)O$.

Professor Fraser has found, by an extremely laborious clinical investigation, that codeine is a less powerful remedy in diabetes than either opium or morphine. Hydrochlorate of morphine is the best of the three: better than opium, and far better than codeine. The dose of hydrochlorate of morphine used was one grain per diem, and it seemed a matter of indifference whether the drug was given in one daily dose of one grain, or in divided doses of one-third of a grain three

times a day. Dr. Frazer's observations thus fully confirm Dr. Mitchell Bruce's. The result is the more satisfactory, as codeine is three times the price of morphine.

EXCISION FOR TALIPES VARUS.

Dr. Garden, Surgeon to the Royal Infirmary and to the Children's Hospital in Aberdeen, showed, at a recent meeting of the local branch of the British Medical Association, a boy on whom he had operated for extreme talipes varus about three years before. There had been removed at the time the anterior part of the astragalus and os calcis, with the whole of the scaphoid, cuboid and cuneiform bones. The result had been excellent. The boy could walk on the sole of the foot with little limp, and was one of the best football players in his school, he being able to kick equally well with both feet.

FRIEDREICH'S DISEASE.

Two cases of Friedreich's disease were recently shown to the Medical Society of London by Dr. Sainsbury. Dr. Ormerod had also intended to show some cases, but they failed to attend the meeting. It is curious to note how cases of this disease entirely escaped attention until comparatively the other day; and curious also to reflect that there are, in all probability, other diseases, presenting an equally distinct symptom-complex to our observation, which as yet escape recognition. Even after a disease has been recognized and its symptoms described, a good many years would seem to elapse before the profession at large begin to diagnose it. It is said, for instance, that the leading throat specialists in London have had more cases of laryngeal cancer sent them from the country during the last two years than in the preceding ten. Cancer may be increasing amongst us, but not quite as rapidly as that.

Eucalyptus oil is recommended as an internal remedy by Dr. Philip, of Edinburgh. He gives it in an emulsion with cod-liver oil. The eucalyptus is said to disguise the flavor of cod-liver oil, and the emulsion was well borne by patients who could not take other preparations of that nauseous drug.

University College Hospital has suffered a serious loss by the resignation of Dr. Gowers, who finds himself unable to discharge the duties of Professor of Clinical Medicine there, and at the same time act as physician to the great "nervous hospital" in Queen Square, without neglecting the large private practice which he has now gained.

A "medical transfer agency" of an entirely irreproachable kind is to be started in Edinburgh. The agency intends to insist on every client giving full and clear information on all matters relating to his practice and profits. A "locum tenens and assistants' department" is also to be organized to supply learned, experienced and immaculate young men at strictly reasonable terms. Wherein the new agency will differ from its rivals is not very clearly stated. DAWSON WILLIAMS.

SOCIETY NOTES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

At the meeting held January 9, Dr. Harry F. Guss read a paper on
THE STUDY OF THE MORTUARY STATISTICS OF PHILADELPHIA.

He objected to the return of such indefinite causes of death as chill, colic, fever, coma, etc. During the past twenty-seven years the average annual birth rate has been 24.35 per 1000; and the death rate 21.84; the excess of births annually being 1070. In eight years the deaths exceeded the births; this being due to small-pox, scarlet fever, cholera infantum and diphtheria; except in 1862-65, when the absence of many husbands during the war was attended with a very creditable decrease in the births.

The greatest mortality in a single week was in July, 1876, when there were 864 deaths; 90 being due to sun-stroke.

The custom of basing the weekly reports upon the interments is fallacious and misleading.

The statistics show a persistent increase in the number of deaths from puerperal septicæmia, venereal disease,

cancer, tumor, diabetes, apoplexy, paralysis, mental diseases, still-birth, malformations, pneumonia, hernia, debility, peritonitis, exposure and neglect. Erysipelas has steadily decreased.

Between 1886 and 1887 the increase in deaths due directly to alcoholism is over 70 per cent. This, Dr. Guss believes, indicates that the use of malt liquors instead of whiskey is not for the public good. There is likewise a very great increase in the deaths due to such affections as are charged to the excessive use of alcohol.

Epidemic and contagious diseases are decreasing, while respiratory, circulatory and nervous diseases increase.

The paper closed with a number of suggestions tending to rectify the inaccuracies of the present system of registration; the most important being that the work should be under the supervision of a competent physician.

In the discussion following, Dr. Leffmann gave some valuable suggestions. The location of zymotic diseases should be given more accurately. Faulty and careless diagnoses give rise to confusion and other affections, or even the results of a debauch are credited to typhoid fever. He thought that Philadelphia was no worse than New York, Baltimore or Boston; which is surely reason for local pride.

Dr. Dulles repeated the recommendation given some time since in the PHILA. MED. TIMES, that the custom of the French Academy should be imitated and commissions appointed to prepare reports upon matters of public interest.

Dr. Joseph Price presented an exceptionally large

OVARIAN ABSCESS,

as large as a child's head, and filling the pelvis completely.

At the meeting held January 23, Dr. E. P. Bernardy read a paper on

BINIODIDE OF MERCURY,

as an antiseptic. He detailed the experience of Bolshesolsky, Krassowski, Mangiagalli, d'Angely, Webster, and Thomson, and gave in detail his own

results with its use in obstetrical and surgical practice, as an application in the form of biniodide wool over the chest in pulmonary troubles, and as a disinfectant of typhoid stools. Dr. Bernardy very fairly proves, if any one doubts it, the efficacy of the biniodide as an antiseptic and its superiority over sublimate.

Dr. Woodbury had used the agent successfully. He objected to the so-called pellets of biniodide, because they are not pellets, and they do not contain the biniodide. They are troches, and look so much like candy that they are liable to be taken for it by children. The active principle is the iodo-hydrargyrate of potassium, or Neisser's reagent. This probably does good by precipitating the leucomaines, which are alkaloidal, and are produced by bacteria.

Dr. M. Price read a paper on

AMPUTATIONS OF THIGH AND LEG.

He believed that surgeons do not sufficiently consider the future usefulness of the stump. As to the leg, all that is left below the middle is useless, and in the way. In amputations just above the ankle the bone cannot be well covered, and an artificial leg cannot be worn unless the leg be extended at right angles, and the artificial limb fitted to the knee. Moreover, it is almost impossible to keep the stump warm.

In the discussion following, several speakers agreed with Dr. Price.

Dr. H. R. Wharton thought a good stump could be secured from Syme's or Pirogoff's operation, as well as from knee-joint amputations, where the condyles and patella are saved. The main element of a good stump is a movable covering.

Dr. J. B. Deaver said he never does Syme's operation, but favors Pirogoff's and Chopart's.

Dr. Woodbury called attention to the observations of Agile, in which it is stated that the prognosis of pulmonary tuberculosis is improved by an amputation, the larger the better. It seems as if the nutritive powers are insufficient for the needs of the whole body, but may suffice if a large part has been removed.

LETTERS TO THE EDITOR.

It is the earnest desire of the Editor to increase the usefulness of this Journal and to render it a practical helper to its readers. One method of accomplishing this end is by means of a column devoted to letters to the Editor. Short, concise papers upon medical subjects, records of cases worth being reported and queries on any medical subject are requested.

CARBOLIC ACID IN TYPHOID FEVER.

So numerous are the new remedies brought before the profession, and so great the desire to discover specifics for the cure of disease, that in our research and experiments we are prone to lay aside, and neglect the study and use of some of our old and most valued remedies.

Certain it is, we have no specifics in the strict sense of the term, as the surroundings, constitution, temperament, etc., of each case, so modify the pathological condition and symptoms of a disease as to require different kinds of treatment.

Most diseases at some time or another have had their so-called specific treatment, which has fallen into disuse, to be followed by other methods; so it has been with typhoid fever.

Bartholow originally suggested carbolic acid and tr. iodine in this fever, which has been used with success.

Da Costa and others have used carbolic acid in typhoid with good results.

While many condemn carbolic acid as useless in typhoid fever, it is certainly a good remedy, and as near a specific as any we possess in the treatment of this dangerous disease.

My experience with the acid is limited to thirteen cases, treated during August and September, 1888, without a loss, although ten of them were of the worst type. Treated five cases in July without the acid with a loss of two.

One of the thirteen cases (boy aged 16 years) had a profuse hemorrhage from the bowels before beginning treatment, which was controlled with opium and bismuth subnit. Another case (boy aged nine years) was complicated by an acute bronchitis, which was treated

with carb. ammonia and remedies directed to that trouble.

These two cases were marked by low muttering delirium, subsultus and carphologia. Delirium, etc., were present and pretty well marked in most of the cases, but of short duration. Gave plenty of milk and lime water, and the following prescription throughout the disease:

R Acid. carbolic. gr. xxxii-3 j.
Sp. lavandulae, co. 3 viij.
Aque. ad 3 iv.

M. Sig. $\frac{1}{2}$ to 1 teaspoonful, in water sweetened with glycerine, every three or four hours.

When indicated, tr. digitalis was given alternately with the prescription, and turpentine stupes to the abdomen, and a few drops of the oil of turpentine inwardly when any tympanites was present.

While the stages were not much shortened, the symptoms were rendered very much milder, and there was but little trouble with diarrhoea and high temperature, as there usually is.

In cases where the temperature was high, 104° to 105.5° F., at the end of the first week, it would come down after giving the acid, so that antipyretics were not needed.

The remedy certainly merits a more extended trial in typhoid fever, cholera infantum and cholera morbus.

I think it is but few cases of typhoid fever that are benefitted by heroic doses of quinine and cold baths.

J. M. SITES, M.D.
Upper Tract, W. Va.

AN IMPROVED "UMBRELLA" ELECTRODE
FOR INCREASING THE ACTION OF THE
STATIC BREEZE ON THE HEAD.

It is one of the fundamental laws regulating static electricity that it is condensed and conducted on the surface, and that its intensity is directly in proportion to the surface of the conductor. Realizing these principles it forced upon me the conclusion that the so-called "umbrella electrode" heretofore in use for concentrating the static breeze on the scalp was at fault, for the reason that the metallic points prescribed for the passage of the electricity were not in harmony with the laws governing

its passage. After numerous experiments I have succeeded in devising an improved form of electrode, which, from the results of cases treated by it, as compared to those where the old form of electrode was used, conclusively prove that the electricity is uniformly distributed over the scalp in a manner never before obtained.

The device I refer to consists of two discs of hard rubber seven inches in diameter, through the lower one of which are inserted about 170 fine metallic points, half an inch apart. Between the two discs of hard rubber is fastened one of brass, giving perfect connection to every one of the points, the whole being suspended by a nickel plated lock to a tripod stand having actual ground connection, or not, as the effect is wished to be intensified or lessened. The Michigan Electrical Works of this city carried out my ideas very perfectly, and apart from the increased efficacy of this form of electrode, its appearance is very much superior to the old style, while the cost is very little more.

Dr. H. MONTAGUE.

Detroit, Mich.

LOCOMOTOR ATAXY.

Editor MEDICAL TIMES:

Noticing in the *Medical World* of January, 1889, that in your answers to inquiries you stated that locomotor ataxia is sometimes curable, I write to say that my son has been a sufferer from this disease, and desires to lay his case before you for a suggestive treatment. His disease has been coming on for fifteen years; for the last ten years it has assumed the progressive type, so much so that it is with great difficulty that he can walk at all. His general health is good; weighs 150 pounds. I know no cause for the disease; he has not been dissipated; the great trouble is want of co-ordination. Will you suggest a treatment? He has taken phosphate of zinc without any visible or manifest improvement. I have another son now in the incipient stage, who is only twenty-two years of age, a boy of exemplary habits. The rarity in this country of *tabes dorsalis* render

the medical fraternity here entirely at sea as to the practical procedure required.

J. R. M.

Ironsville, N. C.

[Dr. Charles Carter reported two cures of ataxy, resulting from the use of oxide of silver. We met one of these cases several years afterwards and he was still well, and pursuing his avocation of a walking peddler.

In an advanced case, such as that described by you, little is to be expected beyond relieving the pains with antipyrine, gr. v to xx, as needed, and delaying the course of the malady by electricity, massage and hydrotherapy. In the incipient case we should be inclined to give strichnine, pushed to the verge of tolerance. In one case which came to us in the early stages this treatment proved successful, although the field of vision was contracted in both eyes when the patient was first seen. This was two years ago, and he remains well.—W. F. W.]

DEAR DOCTOR—I have just noted your reply on page 321, to "A question of custom." I have read that Dr. John P. Gray, of the Utica (N. Y.) Asylum, had a large private practice which netted him about double the amount paid him by the state. (Salary \$6,000.) I think your answer is correct.

Charlotte, N. Y. S. J. SMITH.

A LEGAL QUERY.

Editor MEDICAL TIMES:

Could a physician's accounts be garnisheed or attached in Pennsylvania, for damages in a case of malpractice?

J. C. W.

[We do not believe there is any special exemption for physicians' accounts, but that they can be attached like any other book accounts.—ED.]

JABORANDI.

Permit me to add my testimonial to the therapeutical virtue of fluid ext. jaborandi in erysipelas, also its happy action as a relaxant agent in obstetrical troubles.

J. R. McCORKLE.

FOR DYSPEPSIA.

R. Acidi hydrochlorici dil.	3 v
Lactopeptine.	3 iiss
Liq. potass. arsen.	3 i
Glycer. acid. carbol.	3 iiss
Syr. zingiberis.	3 iss
Aq. pep. minth.	q.s. 3 iv

M. Sig. Teaspoonful in a wineglass of water after each meal. (Shake well.)
Charlemount, Va. R. G. O'HARA, M.D.

REVIEWS AND BOOK NOTICES.

THE OPERATIONS OF SURGERY, by W. H. A. JACOBSON, F. R. C. S., Assistant Surgeon, Guy's Hospital; Teacher of Operative Surgery, and Joint Teacher in Practical Surgery in the Medical School; Surgeon to the Royal Hospital for Children and Women. pp. 1002. 199 illustrations. P. Blakiston, Son & Co., Phila.

To-day successful surgery is a matter of attention to details, and the art of surgery is more regarded than the science. The surgeon, now, feels that he is to blame for every result after operation that is not absolutely perfect, and that the imperfections depend upon his inattention to well known details.

New operative procedures and modifications of the older methods appear almost daily in our enormous periodical literature, and any work grouping this material is gratefully received by the surgeon.

Mr. Jacobson has well fulfilled his task; not only are his descriptions of his operations full and exact, but he gives clearly and concisely the diagnostic points and the indications for operation. The newer operations are described in full, often in the words of the original operator; the list is a long one and indicates the very rapid recent advances in surgery. He includes, in addition to the modifications in the older operations, full description of Hardie's modification of Goyraud's operation for contracted palmar fascia; the methods of nerve and tendon suture, the modern treatment of bullet wounds of the brain and abdomen, the removal of brain tumors by the methods of Godlee, Horsely, and others; MacEwen's method of making a new humerus by the transplantation of bone; stretching of the facial nerve; excision of the larynx; the drainage of lung cavities; the excision of ribs for empyema; the radical cure of hernia by the methods of Banks, MacEwen, Barker, Wood and Spanton; nephrotomy; nephrectomy; nephro-lithotomy; nephrorraphy; the method of exploration of the abdomen in acute intestinal obstruction; the operative treatment of suppurative peri-

tonitis; Loreta's operations for dilating the orifices of the stomach; excision of the pylorus; gastro-enterostomy; duodenostomy; jejunostomy; Bernays' treatment of gastric cancer by the use of the curette; excision of the spleen; cholecystotomy; cholecystectomy; litholapaxy in male children; treatment of ruptured bladder; excision of the rectum; wiring fractures of the patella; erosion of the knee joint; trephining the vertebral column, etc., etc.

He describes, but does not endorse, tubage, or intubation of the larynx, and states that Mr. MacEwen first called attention to this method, and reported four cases in 1880. Dr. O'Dwyer's first paper appeared in '85.

He does not mention Hueter's operation for the removal of the second division of the fifth nerve, probably the best operation for this purpose yet devised; nor Senn's method of rectal insufflation of hydrogen gas in the detection of wounds of the intestines. The work would bear, with great advantage, the addition of a number of wood cuts.

J. M. B.

THE THEORY AND PRACTICE OF OBSTETRICS: Including Diseases of Pregnancy and Parturition, Obstetrical Operations, etc. By P. CAZEAUX. Remodeled and re-arranged, with additions and revisions, by S. TARNIER. Eighth American Edition. Edited and revised by ROBERT J. HESS, M. D., with an appendix by PAUL F. MUNDÉ, M. D., with chromolithographs, lithographs and other full page plates, and 175 wood engravings. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut street. 1889. Cloth, \$5.00.

This is a student's edition of 1221 pages. A foreign work which has reached the eighth American edition is certainly popular. Since the preceding edition was issued there has been much progress in the art, and the American editor has had a later French edition to consult, and also one appearing in Italy, with notes by Chiara, Morisani, Libone and Porro. The text of Cazeaux and Tarnier has been left intact, and later contributions have been separately introduced.